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AURAL VERTIGO.

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AURAL or auditory vertigo, as its name would indicate, is a vertiginous condition due to an irritation of the auditory apparatus. This irritation, usually in the form of pressure, may be situated either in the external, the middle, or the internal ear, or in or upon the auditory nerve, within the cranial cavity. Though originating in the different parts of the organ of hearing, this irritation, in order to produce vertigo, must be exerted ultimately in the form of pressure upon the terminal filaments of the auditory nerve in the semicircular canals, and thence conveyed to the cerebellum, as will be shown hereafter. Some observers hold that all disturbances in equilibration, as manifested in giddiness, are due either to a temporary or a permanent lesion in the labyrinth. In fact, some hold that the semicircular canals are vertiginous centres. While I am not prepared to accept this theory, it is plain to my mind that in the semicircular canals there is found a very sensitive medium of communication of impressions to the cerebellum, and hence that these canals may be considered as in many respects presiding over the equilibrium of the body. Although many instances of vertigo can be shown, in my opinion, to be due to irritation of these canals, by virtue of the vasomotor connection between them and remote parts of the body, it is my object to limit the scope of this paper to a consideration of vertigo arising from irritation in the various parts of the auditory apparatus, and communicated to the semicircular canals, and thence to the cerebellum. The whole matter of aural vertigo will be most easily understood by a consideration, first, of the structure and distribution of the auditory nerve.

Structure of the Auditory Nerve.—Mons. M. Duval has shown* that a portion of the fibres of origin of the auditory nerve are closely connected with a mass of motor cells in the bulb, and that these fibres pass into, and are continued in, the inferior peduncles of the cerebellum. The inferior peduncles of the cerebellum connect it with the medulla oblongata, pass on downwards to the back of the medulla, forming part of the restiform bodies, and are then connected below with the corresponding half of the cord, excepting the posterior median columns.

It is well known that injuries of these peduncles cause disturbances in motion similar to those observed after lesions of the semicircular canals. It seems, therefore, that there is a sort of special function resident in these canals, that exaltation of their function evokes peculiar movements of the head and mediately of the trunk and limbs, and that the anatomical explanation of this is found in their cerebellar connection; and it further appears that there are two kinds of fibres in the auditory nerve, —viz., the motor fibres, distributed to the ampullæ of the semicircular canals and connected with the bulb and the inferior peduncles of the brain, and another set distributed to the utriculus, the sacculus, and the cochlea, which are accepted as purely sensory. It is to the motor set of fibres in the acoustic nerve that our attention must be directed in considering the subject of this paper.

The question naturally arises, are not these inferior peduncles wounded in experiments on the semicircular canals? My reply is that in the pigeon, used for these sacrifices, the semicircular canals stand away from surrounding tissues in the cranium, as the cochlea does in the bulla of the guinea-pig, so that mutilation of any parts but the semicircular canals is avoided. That the phenomena attributed to mutilation of the *semicircular canals* in these experiments are justified seems further confirmed by recent experiments by Gellé, of Paris, upon the *cochlea* alone, by which he shows that in the guinea-pig mutilation and extirpation of the cochlea, easily accomplished in this animal without opening the true cranial cavity, is unattended by the slightest disturbance in equilibration.

It must be further borne in mind that the auditory nerve originates from numerous white striæ—the lineæ transversæ—which emerge from the floor of the fourth ventricle, and that it is also connected with

* Gellé, De l'Oreille, etc., p. 323. Paris, 1881.

the gray matter of the medulla. Now, the fibres of the pneumogastric nerve may be traced deeply through the fasciculi of the medulla, to terminate in a gray nucleus near the floor of the fourth ventricle: so that anatomically the auditory nerve and the pneumogastric are thus shown to be at least contiguous at their origin,—a fact entirely satisfactory in the "overflow" theory, as will be shown.

As has been said already, authors speak of a "vertiginous centre,"* and of vertigo as "undoubtedly a sensation." The latter may be evoked by an overflow of nerve-impulse from some one centre of the encephalon to the so-called vertiginous centre; and, from what we know of the physiology of the semicircular canals, we may assume that the central termination of the ampullar nerves is in a very close connection with a spot in the brain, irritation of which will produce the sensation of giddiness. This, as we now know through the labors of Duval, is in the cerebellum, and owes its great influence most probably to its connection, by means of its inferior peduncles, with the spinal cord.

To this connection we owe the greater or less impulse conveyed over the portion of the auditory nerve supplying the semicircular canals in every turn of the head or movement of the body. When this impulse is slight, or let us say normal, it does not produce vertigo, but informs us, or aids in the information, of our position in space. Thus there is established the so-called "sense of equilibrium." The disturbance of this sense constitutes vertigo.

If such an "overflow" of irritation can take place between the central termination of the ampullar nerves—*i.e.*, the nerves of the semicircular canals—and the vertiginous centre in the cerebellum, it is fair to assume that a similar "overflow" may take place between this ampullar centre and the pneumogastric centre, simply because the two latter are more contiguous to each other than the ampullar centre and the vertiginous centre in the cerebellum. In this contiguity an easy explanation is found of the nausea, vomiting, pallor and faintness, the slow breathing and weak pulse, which occur in aural vertigo; for we are entitled to assume that the irritation in the auditory apparatus and auditory nerve centre overflows to the respiratory, the cardiac, and the vomiting centre.

Anatomical Causes of Tinnitus Aurium.—As tinnitus aurium is almost a constant attendant upon vertigo from any cause, but especially attendant upon auditory vertigo, it is necessary in this paper to consider briefly *its* probable anatomical cause. It should be borne in mind that great error has crept into our diagnoses through considering tinnitus aurium a subjective sensation. Although this originates in the subject, tinnitus aurium, of all qualities, should not be considered a truly subjective sound, any more than we should regard the heart-sounds or aneurismal murmurs as purely subjective. Tinnitus aurium is best understood by being regarded as a truly objective sound; for it will be found upon reflection to be due to the perception by the auditory nerve of the circulation of the blood in the organ of hearing, and not in the nerve itself. The terminal expansion of the auditory nerve—not the nerve-trunk—responds *only* to the stimulus of sound: so that if there is hearing there must be sound; just as the retina, and not the optic-nerve trunk, perceives light, so that if there is a perception of light it must be through a terminal expansion of the nerve of sight impressed by light. Hence, excepting perhaps in some rare cases of cerebral disorder, where statements of the subjects are not highly reliable, there is no such thing as subjective sight or hearing. If there is said to be hearing, there must be sound; so that tinnitus aurium is the hearing on the part of the ear of the sound or sounds which are produced by the movement of the blood in the various parts of the ear. This sound may be due either to an increase in the flow of blood through these vessels, and the consequent vibrations produced thereby, or to a *retention* of sound-waves produced by the ordinary circulation of blood through the organ of hearing.

The normal flow of blood through the vessels in or very near the ear is not heard because the sound-waves caused by the movements of the blood in these vessels flow outward through the drum-cavity, the membrana tympani, and the auditory canal, and are lost to our senses; but stop the external meatus, even for a few seconds, with the finger, and these sound-waves are thrown back into the ear, the resonance of the organ is altered, and a murmur is

* P. McBride, of Edinburgh, Medical Times and Gazette, vol. i., 1881; also J. A. Irwin, M. A. Cantab., M.D. Edin., Pathology of Sea-Sickness, Lancet, November 25, 1881. An article of intense interest and great value.

heard. Thus we can at will produce a tinnitus aurium, and to a great extent comprehend that tinnitus aurium in general is due to the hearing of obstructed, retained, and reflected waves of sound originating in or near the ear. In fact, in tinnitus aurium we have the murmur, of course in varied pitches and intensities, produced by minute vibrations in the walls of arterioles and veinlets in or near the ear, through which blood is flowing and setting up vibrations, just as we hear an aneurismal murmur which is evoked in a similar way.* Hence it is that it can be asserted that tinnitus aurium is really an objective sound, made in and heard by the ear, and is to be explained on purely physical grounds.†

Symptoms.—The symptoms of aural vertigo may be briefly stated as follows. The patient more or less suddenly experiences in one or both ears tinnitus, and more or less hardness of hearing. This is quickly followed by a dizziness passing rapidly into a pronounced vertigo, with reeling and falling, accompanied by nausea, vomiting, and faintness, but rarely with loss of consciousness. When the latter ensues, it is simply complete syncope from the nausea and vomiting. Usually the patient almost instinctively associates his vertigo and attendant malaise with derangement in the ear, which may or may not have been previously diseased. These symptoms, which are here given in the order of their onset and sequence, are subject to modifications according to the part of the ear affected. Thus, when the irritation is in the *external ear*, neither the tinnitus nor the deafness may be excessive; but both are permanent from the onset to the cure, and the tinnitus is acoustically of the uninterrupted quality. When the irritation lies in the *middle ear*, the symptoms are likely to be paroxysmal, as though the physical conditions upon which the altered and morbid pressure or tension depends varied with the state of the atmosphere or with the health of the patient. In cases dependent upon irritation in the external ear or labyrinth, all the symptoms are usually more pronounced, though the attacks of tinnitus and dizziness are paroxysmal, while the deafness is most profound and permanent, whether it comes on suddenly with the first attack of vertigo or not. The latter passes off, but the deafness remains.

Vertigo dependent upon disease like a tumor in or upon the auditory nerve, and which may be denominated a central form of auditory vertigo, is usually not paroxysmal, the patient experiencing a constant and increasing tendency to alterations in gait, with a disposition to fall towards the affected side in walking. Here the permanency of the symptoms should lead us to suspect disease in the cranial cavity.

Differential Diagnosis.—All the forms of aural vertigo are not only confounded in diagnosis with each other,—and in some cases there may be a commingling of two forms in the same subject,—but they are constantly mistaken for stomachic vertigo, so-called biliousness, epilepsy, and even apoplexy. The confusion among the various forms is hardly to be wondered at, but the aural symptoms and the usually retained consciousness should make the differential diagnosis between this disease and others just mentioned very easy. Then, too, the absence of spasm and the marked pallor in the patient should lead away from the diagnosis of either fits or apoplexy. This defective diagnosis has led to a faulty nomenclature, so that the term Ménière's disease, which, if it means anything, means a disease of the semicircular canals only,—*i.e.*, a disease of the internal ear,—has been very erroneously used to designate aural vertigo in general, instead of being limited to the form of aural vertigo dependent upon disease in the aforesaid canals. That this term "Ménière's disease" should be thus restricted will, I think, be plain to you after a closer examination of all the forms of aural vertigo, of which Ménière's disease is clearly only one. Your attention is therefore asked *first* to that form of aural vertigo due to irritation in the *external ear.* This may be considered the simplest form of the disease, so far as concerns its production and cure; but the mode of its action is the same as in other and graver forms; *i.e.*, the pressure and irritation are at last conveyed to the cerebellum, and then the vertigo is evoked.

Illustration.—Doubtless all are familiar with the celebrated case of external ear-vertigo and other reflex phenomena associ-

* The pitch of the note of tinnitus aurium is usually high, such as is to be expected from the rapid vibration of a short wire or string. The note is, in fact, produced by the vibrations of the walls of minute arterioles and veinlets,—vibrations as numerous as sixty thousand per second. The deeper or lower cooing sounds are produced most probably by vibrations in the larger walls of the carotid artery or jugular vein.

† To Dr. Samuel Theobald, of Baltimore, the profession owes the earliest explanation of the real causes of tinnitus aurium, in a paper published in 1875.

ated with it, recorded by Fabricius Hildanus. In this instance a young girl 18 years old is said to have exhibited, besides the ear-vertigo, atrophy of one arm, epileptiform symptoms, and even anæsthesia of one-half of the body, all of which were cured by the removal of a glass bead or ball from the external auditory canal, where it had lain for eight years. This case is not only classical but highly instructive, but in this latter feature no more so than numerous cases of tinnitus aurium, vertigo, and nausea due to the presence of foreign bodies as simple as masses of hardened ear-wax in the auditory canal, and occurring in the experience of many of us. Vertigo due to irritation in, or applied to, the external ear and outer surface of the drum-head is also constantly seen in syringing the ear, sometimes when done ever so gently. Here the mode of irritation in most cases is by pressure upon the drum-head, and mediately by means of the ossicles and the labyrinth-water upon the filaments of the auditory nerve in the ampullæ of the semicircular canals, the anatomical reasons for which have already been presented.

The giddiness, however, induced by suddenly injecting cold water into the external auditory canal cannot be altogether explained by the pressure it exerts on the drum-head and mediately upon the ossicles of hearing, the labyrinth-water, and the cerebellar branches of the auditory nerve found in the ampullæ of the semicircular canals. Here an explanation must be sought for in the nervous connection between the external ear, the seat of the irritation, and the vertebral artery which supplies the circulation in the labyrinth. We must bear in mind that the effect of irritation in a vaso-motor nerve-tract is to excite vessel-dilatation in a correlated area through diminished inhibitory nerve power. In this instance the irritation is the sudden presence of cold water in the external auditory canal, the diminished inhibitory nerve power is felt in the vertebral plexus, and the correlated area is the labyrinth and especially the semicircular canals. The morbid impression caused by the cold water is conveyed by the auricular branch of the pneumogastric nerve, found in this part of the ear, to the *inferior cervical ganglion*, to which the vagus sends a branch. From this ganglion the irritation is deflected to the vertebral plexus, into the formation of which, fibres from this lower cervical ganglion enter largely; the inhibitory power of the plexus is overcome, and vessel-dilatation ensues in the vertebral artery. This causes an increase in the blood-supply to the labyrinth, and the latter is in a measure engorged, and the labyrinth-water, having no adequate means of rapid escape, is compressed within its bony cavity. This compression is of course quickly felt by the nerve-filaments in the ampullæ of the semicircular canals, they are compromised, and vertigo ensues, for anatomical reasons already given.

Thus it is shown that external ear-vertigo is produced in two ways,—viz., either mechanically by direct pressure on the drum-head and the chain of ossicles, or reflexively through the nervous system.

Middle Ear-Vertigo.—When we come to consider aural vertigo caused by disease in the middle ear, we approach a much more complicated subject. Here the pressure and consequent mechanical irritation may be conveyed in various ways to the labyrinth-water and the terminal filaments of the auditory nerve in the semicircular canals, and thence by the motor fibres to the cerebellum. The most frequent mode of irritative pressure is exerted by an accumulation of fluid, mucus, pus, or serum in the tympanic cavity. The pressure is conveyed through the foot-plate of the stirrup-bone or through the membrane of the round window, or through both, to the labyrinth-water, and through the latter fluid to the auditory nerve, which, as I have stated, contains motor filaments, and thus to the cerebellum. In fact, this process of conduction of irritation is but an exaggeration of the mode of the mechanism of hearing; and we can very easily understand how a great noise, or any noise at times, may produce dizziness and other cerebral disturbance.

Again, morbid pressure may be exerted from the middle ear to the deeper parts of the auditory apparatus concerned in the production of ear-vertigo by closure of the Eustachian tube in throat and nose disease.

After this closure of the tube, the air shut in the tympanic cavity is soon absorbed, a vacuum is then formed in the drum-cavity, and the external air presses the membrana tympani inward, carrying with it the malleus and the rest of the chain of bonelets. Thus the labyrinth-water is unduly compressed, and, as in the previous case,

the auditory filaments in the semicircular canals are also compressed and the cerebellum irritated. In some rare instances there seems to be reason to suppose that a tonic contraction of the tensor tympani muscle occurs,* and that retraction of the membrana tympani and the chain of ossicles ensues. In this way the foot-plate of the stapes is forced inward through the oval window upon the labyrinth-water, and cerebellar irritation is produced, as heretofore sketched. The attacks of aural vertigo of this latter form are paroxysmal, and are accompanied by so-called "variable hearing,"† the hearing growing worse as the tinnitus, which is in fact the prodrome, increases, and finally ushers in the vertigo. In fact, any undue loading of one or of all of the ossicles, or any abnormal pressure upon them, or even excessive swelling of the mucous membrane covering them, by forcing them inward, or by carrying only the stirrup abnormally inward, would tend to compress unduly the labyrinth-water, especially if at the same time the swelling of the mucous membrane extends to the round window and prevents the compensating yielding of its membrane to the inward pressure of the stirrup. In this way the vertigo so often present in acute otitis media may be explained.

Middle ear-vertigo from *chronic* disease in the tympanum is very common, according to the observation of the writer. This source of vertigo is to be expected when we reflect that there is a direct communication between the circulation of blood in the middle ear and that in the labyrinth. Politzer has shown that the capillary blood-vessels of the tympanum pass directly through the inner or labyrinth wall of the tympanic cavity to the vestibule and other parts of the internal ear. Hence it is easily seen how disturbed circulation, which must ensue in chronic disease in the walls of the tympanic cavity, may be felt in the internal ear; and as disturbances in circulation, by altering the pressure in the labyrinth, especially in the semicircular canals, produce vertigo, it can be shown how chronic middle ear-disease may induce aural vertigo.

In middle ear-vertigo it may also be assumed that the pressure in the labyrinth may at times be brought about by altered circulation due to reflex influences, as was shown in external ear-vertigo. The path of the irritation in this case, however, lies probably between the vertebral artery, the vertebral plexus, and the inferior cervical ganglion on one side, and the otic ganglion on the other.‡

Internal Ear-Vertigo.—In considering ear-vertigo due to disease in the internal ear, we approach at once the most difficult and the most interesting form of the disease under consideration. It may be produced by disease in the auditory nerve or in any part of the labyrinth except the cochlea. From recent experiments of Gellé, of Paris, it is conclusively shown that laceration and destruction of the cochlea in mammals (especially in rodents) has no effect whatever upon equilibration. This throws us all the more forcibly back upon the semicircular canals as the very highly probable seat of the organ of equilibration.

Up to this point we have considered the effect on these canals of irritation originating elsewhere and communicated *to* them. Now we shall consider the phenomena of disturbed equilibration due to disease arising *in* them and the irritation it conveys to the cerebellum; and under this head we shall also consider the phenomena of disturbed equilibration due to irritation in or upon the auditory nerve before it reaches the labyrinth, as we sometimes find in tumors, either in the nerve or lying upon it. The phenomena in the latter case appear to me to be confirmatory of the existence of intimate connection between the auditory nerve-fibres and the cerebellum by means of the inferior peduncles of the latter.

History.—Let me bring to your minds the fact that the experiments of Flourens in 1817 first drew attention to the probability that a lesion of the semicircular canals would produce peculiar disturbances in equilibrium of the head and of the body. Subsequently these experiments were repeated, with more or less correspondence and confirmation, by Harless, Czermak, Brown-Séquard, Vulpian, and Goltz. In 1836 Deleau described very thoroughly a disease of the ear closely resembling that

* See article on "Variable Hearing," by the writer, in report of Section of Otology, International Medical Congress, Philadelphia, 1876.

† The late Mr. James Hinton, of London, in "Questions of Aural Surgery."

‡ The *tympanic nerve* communicates with the *small petrosal*, a branch from the otic ganglion. The otic ganglion communicates with the superior cervical ganglion, and this with the middle cervical ganglion, if present; if not, with the inferior cervical ganglion. The inferior cervical ganglion supplies largely the vertebral plexus, regulating the supply of blood in the labyrinth.

which later was called Ménière's disease. It might just as well have been called Deleau's disease. In 1860 Ménière the elder observed peculiar disturbances in equilibration and motion in a young woman, who also at the same time presented peculiar aural symptoms, prominent among which were tinnitus aurium and deafness. The girl dying suddenly from other causes while manifesting these peculiar aural cerebral symptoms, Ménière examined the internal ear, and thought he found peculiar pathological changes of an apoplectiform nature in the semicircular canals. Although the account of this investigation is extremely meagre and unsatisfactory, it excited so much interest at the time it was made as to lead to the application of the term "Ménière's disease" to every form of aural vertigo,—a most confusing and unjust nomenclature. But these examinations of Ménière served a good purpose in recalling the attention of physiologists to these canals in the labyrinth of the ear, and to lead to further examination into their functions. So that, with the experiments of Boettcher, of Dorpat, in 1872-73, it may be said a new and much more scientific era dawned upon the investigation of the functions of the semicircular canals. But this subject would of itself furnish material for a lengthy paper. It must therefore suffice to say that Boettcher set an example of extremely careful examination and manipulation in his experiments, which was followed by Bloch, Cyon, Mach, Berthold, Breuer, Curschmann, Löwenberg, and Berhardt, and, within a year, by Gellé, of Paris, and to some extent by Baginsky, of Berlin.* These experiments have been in every way brilliant, and from them there is every reason to draw the conclusion that in that part of the ear so long a puzzle to physiologists—viz., the semicircular canals—there resides a "sense of equilibration" which owes its power to its connection by means of the auditory nerve with the cerebellum. The anatomist, working from the brain and its structure, has met the experimental physiologist at the semicircular canals, and to their united labors science owes the important accumulation of facts on this subject now at her command.

Clinical History and Symptoms.—In internal ear-vertigo, the ear having been previously healthy or considered so, the patient is suddenly attacked by tinnitus, vertigo, nausea, reeling, and falling, but his consciousness is retained. After these symptoms abate and the alarm of the patient subsides, the hearing is discovered to be gone in the affected ear. This form of ear-vertigo the writer has seen in adults of various ages, usually in men over thirty, and in all grades and avocations,—in the hard-worked physician as well as in the overworked mechanic. Upon examination, the drum-head will present no great change, or it will look like one belonging to an ear previously the seat of chronic catarrh; and generally, upon close inquiry, it will be elicited that there is history of exposure, in camp or in daily labor, to inclement weather, and that the ear now attacked so severely has already at times felt stuffed and deaf, but that it got better and was a good and serviceable organ. The general health will be found to have recently failed, or to have been greatly taxed by some sudden stress of work, and it will also be found that the ear has "buzzed a little of late," but not constantly, and that this had been forgotten, until the attack of ear-vertigo brought it back to the memory. The hearing will be found to be profoundly impaired and to remain so, while the tinnitus may or may not remain, and the vertigo will be found to have temporarily vanished. Sometimes, with care and proper management, no further attacks of vertigo are felt; but the hearing remains permanently affected. On the other hand, the tinnitus may be always present to some extent, may increase suddenly at times, and form, as it were, a forerunner of subsequent attacks of vertigo.

As I have rarely seen a case of internal ear-vertigo without conclusive evidence of a previous chronic catarrhal disease in the middle ear, with necessarily great changes in nutrition and circulation, and as it is well known as fully established that the circulation between the middle and internal ears is most closely connected, therefore I am forced to conclude that internal ear-vertigo, or what Hinton, of London, used to call "labyrinthine vertigo," is usually preceded by pathological changes in the

* It seems to the writer that the experiments of Baginsky have been conducted deliberately with great violence, and with a view of producing a rupture of the membrane of the round window and meningitis. Hence they cannot be adduced to prove that a less violent irritation of the semicircular canals will not produce vertigo, nor do they prove anything against the supposition that a sense of equilibrium resides in the semicircular canals. There is more in favor of this view than the experiments of one man can overthrow.

circulation of the middle ear, which induce changes in the vessels of the internal ear, culminating in the sudden and grand attack I have sketched. Whether these changes and their results are of an apoplectiform nature cannot be discussed here.

The diagnosis, however, will be aided by the suddenness of the tinnitus, vertigo, and deafness, and especially by the fact that the tinnitus and vertigo are more or less evanescent, while the deafness is profound and permanent from the first. This form of aural vertigo, and no other, may justly be termed "Ménière's disease."

Central Ear-Vertigo.—There is a form of ear-vertigo which is due to a tumor of the auditory nerve.* This nerve, according to Virchow, is more frequently the seat of morbid growths than any other cerebral nerve. When the vertiginous symptoms dependent on the presence of these tumors, usually fibrous or sarcomatous in nature, first show themselves, it is not easy to distinguish between this form of ear-vertigo and that due to chronic changes in the middle and internal ear combined. There are, however, some points of difference so constant in their occurrence as to constitute truly pathognomonic symptoms. To begin with, central ear-vertigo dependent upon morbid growths in the auditory nerve is never sudden, but slow in its onset. The deafness and tinnitus, as well as the vertigo, are comparatively slight at first, but then steadily increase, and are always permanent from the time they first show themselves until the end. The gait is permanently altered, though it may be only slightly changed at first, and the tendency is to fall towards the affected side. Not so, however, in true internal ear-vertigo, in which the initial lesion is in the labyrinth in or very near the semicircular canals. In this the deafness is sudden, profound, and permanent, but the giddiness and falling are paroxysmal. In middle ear-vertigo, in which the deafness and tinnitus are great, the deafness is not sudden or profound, the vertigo comes in attacks, and there is no permanent alteration in gait.

Treatment of Aural Vertigo.—If it has been shown that aural vertigo is due to pressure in some form, either directly or mediately, upon the auditory nerve, and reflexly thence to the cerebellum, the indication in treating such cases is to remove, or at least diminish, this pressure; and this can be done surgically or medicinally. Let me say here that great confusion arises when these cases of aural vertigo are treated as cases of biliousness,—a much too frequent error. If the irritative pressure is due to a foreign substance of any kind in the auditory canal, it is to be relieved by the removal of the foreign substance, best accomplished by syringing with warm water.

If the irritation is due to pressure from matter accumulated and retained in the drum-cavity, it must be allayed by removal of the retained mass. This can be accomplished by paracentesis of the drum-head, by inflation of the tympanic cavity with Politzer's air-bag, or by catheterization. Even when matter is inspissated in the drum-cavity, one or all of these methods combined must effect its removal. The ossicles are thus allowed to swing freely, the stirrup comes back to its normal position, the membrane of the round window is relieved, and the pressure is taken from the labyrinth-water and the ampullar nerves in the semicircular canals.

If the pressure is due to a vacuum in the drum-cavity, and a consequent indrawing of the drum-head and the ossicles from closure of the Eustachian tube at its faucial end, the introduction of air by one or both of the above means will usually restore the drum-head to its proper place and unlock the pressed-in chain of bonelets, thus relieving the compression in the labyrinth and semicircular canals.

In cases of tonic spasm of the tensor tympani muscle, the attacks may be relieved by inflation of the drum-cavity, which forces outward the drum-membrane and the malleus and antagonizes the indrawing effects of the spasm in the tensor muscle. The disease in this form is also to be combated by antispasmodics, preferably bromide of potash in large and frequent doses, as much as ten to fifteen grains every fifteen minutes being given, with most excellent effect, as the attacks are coming on, or when on, as I have had occasion to test.

When the vertigo is due to chronic aural catarrh,—*i.e.*, chronic change in the mucous membrane of the middle ear,—the

* By the aid of Dr. Morris Longstreth, I have shown in my "Treatise on the Ear" (p. 581) that tumors of the trunk of the auditory nerve may invade the labyrinth and destroy the auditory nerve-filaments contained therein, as observed by us in a case of tumor of each auditory nerve in a woman 42 years old.

field of treatment becomes indeed a wide one. The catarrh of the mucous membrane of fauces, naso-pharynx, and nares will usually require treatment, as well as the mucous membrane of the cavity of the drum; but in these cases the greatest benefit may accrue from the use of tonics and bromide of potash as above advised.

The morbid circulation which no eye can see, but which surely underlies these cases, may be connected with anæmia or plethora, and the diagnostician must bear this in mind in the treatment of the case. Local treatment in the external auditory canal will usually increase the dizziness by overloading, physically, the membrana tympani. Blisters, leeches, etc., about the external ear and mastoid portion of the temporal bone are useless: they may be so bothersome as to increase the malady.

Rest in bed is absolutely essential when the vertigo is frequent and severe. It is always a relief during an access of dizziness. The vertiginous centre may be said thus to recover itself, and the immediate attack is found to pass off more quickly than if the patient continues to walk about, while the liability to subsequent attacks is diminished. This is not the case, however, if the vertigo is constant and apparently due to a cerebral tumor in or about the auditory nerve or labyrinth.

Respecting the treatment of internal ear-vertigo, it may be said that a typical case of this form of the disease presents deafness which is irremediable. The attacks of tinnitus and dizziness may be lessened in number by attention to the general health, preference among drugs being given to quinia, strychnia, and iron, separate or combined. For immediate relief of the tinnitus nothing has been found by the writer equal to bromide of potash, and, in fact, no remedy is equal to this in relieving tinnitus generally.

Finally, the tinnitus and dizziness may cease, never to be felt again, but the deafness remains, being probably due to an organization of an exudation or extravasation thrown into the labyrinth at the time of the first grand attack. But, unfortunately, the pathological processes in such cases are not well known, as the researches have been meagre. If the case is seen at the beginning of the disease, and there is reason to surmise the existence of an exudation, an extravasation, or a hemorrhage into the labyrinth, the administration of the iodide of potash or of mercury, or both, would certainly be indicated; but, given late in the disease, these are valueless. The greatest care should be taken to build up rather than break down tissue; for there is generally in these cases of supposed exudative disease ample ground for the belief that in overwork a minute vessel in the labyrinth has ruptured or that a passive exudation has occurred from the walls of several vessels.

In conclusion, let me say that I have brought before you the following facts:

1. That there are two sets of fibres in the auditory nerve,—viz., the sensory and the motor.

2. That the motor filaments are connected on one side with the cerebellum by means of the inferior peduncles, and on the other side with the nerve-filaments sent to the ampullæ of the semicircular canals.

3. That irritation of these ampullar nerves may be conveyed from either of the three parts of the auditory apparatus, or from the auditory nerve itself, in the mechanical form of pressure, and that this irritation may be further conveyed to the cerebellum and cause vertigo: so that it logically follows that this reflex cerebellar phenomenon as produced by aural irritation should receive the general denomination of *aural vertigo*, and that Ménière's disease is only a form of aural vertigo. Hence the latter name, unless used after accurate diagnosis of a disease originating in the labyrinth,—*i.e.*, in the semicircular canals,—will create confusion. But it should be said, in justice to Ménière, that, so far as the writer knows, he has never claimed a general application of his name to all forms of aural vertigo. It has been so applied only by well-meaning but inaccurate diagnosticians.

TREATMENT OF UTERINE FIBROIDS WITH IODINE.

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I WAS consulted, September 17, 1880, by Mrs. F., aged 40 years, married, mother of four children, the youngest eight years old. Complexion sallow, figure stout, weight about one hundred and fifty pounds, general appearance anæmic. She had suffered for over three years from frequent and profuse menstruation; had always been short of her regular time, the periods occurring often twice

in the month, and the flow amounting sometimes to flooding, confining her to her bed from four to six days each time. She first passed large, firm clots, several during the catamenial period that seemed a handful, attended by straining and pain, much like labor-pains, which was followed by an irregular and hemorrhagic flow, inducing a long train of neurasthenic symptoms and greatly-impaired health. She had dragging pains of the pelvis and back, had headache, was nervous, had half-sight, palpitation of the heart, irritable bladder, and constipation.

September 20 I made an examination; found the uterus lower and larger than normal, retroverted, firm to the touch, the external os patulous, admitting the point of the index finger, easily tilted forward, slightly abraded, with some moisture of a leucorrhœal nature at os. The probe passed in four and a half inches, by depressing the point so as to conform to the inequalities of the anterior wall of the organ, which on palpation was found to be much thickened. No evidence of cellulitis or other abnormal surroundings was observed.

Some bleeding occurring from the manipulations, I painted the os and cervix, as far as I could penetrate, with compound tincture of iodine, promising to continue it twice a week, and directed the patient to use hot-water vaginal injections daily, the water to be as hot as she could bear.

I applied the iodine on the 23d and on the 27th, menstruation appearing during the week: sickness in the family prevented my continuing the applications, and they were interrupted for the time.

The menstrual period just passed was much more comfortable; she was sooner over her sickness, had less flow, and felt better. The period in October was completed with comparative ease, the duration of the catamenia was not prolonged, and the amount of the discharge was not excessive. A short time after her last period she met me on the street and said, with evident delight, "I bless you every day for the good you have done me. I am so much better!"

Her period in November, however, was not so fortunate for her. I saw her on the 16th with quite a flow, which continued from day to day to an alarming degree, in spite of every remedy used to arrest it. I gave her large doses of Squibb's fluid extract of ergot, gallic acid, sulphuric acid, acetate of lead and opium, applied cold compresses, kept her head low, with absolute quiet, without benefit, until the 21st, when I was prevented from seeing her until the 26th, Dr. Basil Norris kindly visiting her for me. The hemorrhage during this time continued with unabated severity, which not even the tampon and other means employed could control.

In order to ascertain the cause of the hemorrhage and to facilitate local treatment, large sponge-tents were now introduced successively until the proper dilatation was secured, and on exploration of the uterus by Dr. Norris and myself, by digital examination and the probe, a fibroid tumor was discovered embedded in the anterior wall, extending from the neck upward towards the fundus, oblong, and as large as a hen's egg. The uterus, cervical canal, and vagina were filled with cotton-wool saturated with persulphate of iron, and the hemorrhage ceased.

We visited the patient together until the 27th, at which time, though convalescent, she was still weak, pale, and faint on the least exertion. No bleeding occurred after the effectual plugging of the uterus, and there was no consecutive irritation set up by the necessarily continued manipulation.

Surgical means for her relief was discussed, but nothing definite was determined upon, as her husband was absent from the city, and we thought it advisable that he should be apprised of her condition, so that he might be present in case surgical interference should be required; and further proceedings were postponed indefinitely.

Iodine was also spoken of, but was not considered of much value, as the little benefit it might accomplish was not thought sufficient to compensate for the uncertainty and trouble it would occasion, and serious results might be precipitated by delay.

The patient, however, expressed a wish that I would continue the iodine, as she said she felt better after the two or three applications I had made; and, to employ the time, I consented to continue the applications to the uterus twice a week for an indefinite time.

I began the applications January 14, using Churchill's tincture of iodine, and directed her to take ten to fifteen drops of compound tincture of iodine (U.S.D.), largely diluted, three times daily, and also to continue daily the hot-water vaginal injections.

I continued this treatment until May 12 following,—nearly four months,—only omitting during the menstrual period, beginning it as soon as the menstrual effort was completed, and discontinuing only when menstruation was apparent.

Nothing occurred during the treatment worthy of special mention. She had no hemorrhage or excessive flow after the commencement of treatment. Her periods became regular and painless, the flow normal in time and quantity, and the record showed such steady improvement in general health that I concluded to make a further examination to see what change had been made after so long a treatment.

May 12 I introduced a large sponge tent, and removed it on the 13th. By digital examination I found to the touch the uterine surface and cervix smooth and even, the uterus reduced in size, and its position good. The probe passed in three inches without

obstruction. No trace of the tumor could be found.

Anxious that my conclusions should be verified, I introduced a larger tent, and requested Dr. Basil Norris, who had seen the case with me before, to meet me in consultation the next day to examine the patient with me again.

Dr. Norris met me as requested, and after removing the tent, the cervical canal being sufficiently dilated to admit the index finger, a careful, painstaking, and thorough exploration was made, and neither of us could find the least vestige of the tumor left, and we had no hesitation in expressing the opinion that it had been entirely absorbed.

June 15 she left the city for one of the Virginia springs, where she remained until September 15. She wrote me in July that she was well, and had had no return of her troubles, though she walked a good deal, even up to the top of the mountain. When she returned in September her weight was one hundred and seventy-three pounds.

She was, of course, approaching the menopause, when naturally most of her troubles would lessen or cease, though not necessarily so; but she has been placed by the treatment in a better condition of health, and will be better able to endure any change that might occur to her at that period which most women rather dread than invite; her mental stamina and nervous energy are stronger, and she is relieved from the annoying reflection that she has a *tumor* which at any time might put her life in jeopardy, either of itself or peradventure by reason of any operation that might have been considered or rendered necessary.

She has kept well to the present time, has been able to perform her usual duties, and has required no further treatment; and I think I am justified in reporting the case as one of those that occasionally occur in practice where absorption takes place either by natural or by artificial means.

There is nothing new in the use of iodine in the treatment of uterine fibroids; but I have attempted its application in a number of cases, rather experimentally, with the view of testing its utility, or confirming the cases reported, though vague, heretofore made in that direction. I must say, however, that, while the literature of uterine fibroids is very voluminous, I have been able to find very little illustrating their successful treatment by any purely medical means.

The text-books treat of it only in a given way,—teaching either surgical interference or nothing, that no remedies directed internally or externally can reach abnormities of this kind; and it is better to trust to nature than to risk the uncertainties of such therapeutics.

They teach that uterine fibroids continue to grow until the menopause, and that if not removed by manipulation or operation they undergo a certain degree of atrophy with the cessation of uterine or ovarian function, and cease to be in any great degree a source of annoyance, or at least of danger; and even during the age of uterine activity nature may, unaided, effect a cure by the following means: absorption or atrophy, direct expulsion by rupture of attachments, sloughing from deprivation of nutrition or inflammation, calcareous degeneration. (Thomas.)

Under "Absorption," Thomas says, "Whether their absorption can be excited by any medicines at our command is very doubtful. Tumors have, in certain instances, been known to disappear while drugs have been employed, and perhaps they did so in consequence of their use. But no such effect can be looked for with any confidence. Indeed, with our present experience such a result must be regarded as decidedly exceptional. Scanzoni, after advising those medicines which are most popular as stimulants of absorption, says, 'We do not remember a single case in which, with the means indicated or with others, we have obtained the complete cure of a fibrous body.' And, further, that whatever drugs be tried should be continued for many months, and even a year or two before the trial can be considered fairly made; for their action is never immediate."

Emmet says, "Different agents have been put forward from time to time as efficacious in causing absorption of these growths, but as yet none have fairly stood the test. We are to-day ignorant of any means other than extirpation by which a hard fibroid can be removed from the uterine tissue; they do sometimes disappear through the unaided efforts of nature, but we are in the dark as to the exact process."

West says, "But it may be asked whether there is no remedy that exerts a specific influence on the growth of these tumors,—none by which we can obtain their absorption, or at least feel sure of putting a stop to their growth. I very much fear that no such remedy exists, or at least has been at present discovered."

Churchill says, "We know that such tumors have been absorbed spontaneously;

and we know also that certain medicines have the power of quickening absorption, and it is not unreasonable to expect that a judicious administration of such will be followed by success."

Schroeder (in Ziemssen's "Cyclopædia of the Practice of Medicine") says, "The termination of fibroid tumors, in the great majority of cases, consists in an arrest of growth. . . . But even when the fibroid continues to grow, and gives rise to serious symptoms, the growth is ordinarily very slow, and it is likely to terminate at the menopause, or even to recede from that time. Quite an array of instances of the complete or almost complete disappearance of fibroid tumors may be found in literature, in some of which the diagnosis may appear a little doubtful, but in the majority of which its correctness may be regarded as beyond question. . . . If we inquire under what circumstances and by what means that absorption was accomplished, we shall receive no very satisfactory answer. . . . The most unreliable results seem to follow therapeutic interference. . . . We should distinctly remember that all the means recommended usually fail, and we have no internal treatment from which in any individual case we are justified in expecting good results with the least degree of certainty."

Williams (Reynolds's "System of Medicine," vol. v. pp. 763–7) says, "With a view of effecting a cure, several medicines have been in use. When treatment is undertaken with this view it should be distinctly understood that the prospect of causing absorption of these growths is exceedingly slight, and that no treatment can be of any avail unless persisted in for a prolonged period."

In regard to the treatment of fibroids, and of the remedies to be employed, there is a great diversity of opinion among gynæcologists. Leaving out of the category surgical interference, which would seem to be more applicable to the peduncular, interuterine, submucous form (though Thomas says, "Uterine fibroids, whether submucous, subperitoneal, or interstitial, may frequently be removed by excision, écrasement, enucleation, or gastrotomy"), the medicines recommended for the production of the absorption or cure of fibroids are various and multiple.

Emmet says, "Drs. Churchill and Savage recommended the use of iodine to promote the absorption of fibroids; Simpson and Wells, the bichloride of mercury; Simpson, the bromide of potassium; Rigby and McClintock, the chloride of calcium. The mineral waters containing the bromides have been thought to be efficacious. . . . Ergot has been extensively employed by different methods. . . . Electrolysis may have been employed with some benefit. . . . I have seen beneficial results from the long use of small doses of bichloride of mercury, in combination with an infusion of some one or more of the bitter vegetable tonics. . . . Sir James Y. Simpson held that to secure the full effects of bromide of potassium it was necessary to employ the remedy continually for months, or even a year or two. . . . The chloride of calcium I have never employed. . . . As a rule, great benefit is obtained from it (ergot) when given in small and continued doses."

West says, "Mercurial preparations most certainly have no influence in stopping the growth [of these tumors]. . . . And the alleged powers of iodine seem to have been very much overrated. The disintegration of the tumors and their expulsion have never, in my experience, succeeded the continued use of iodine. . . . Still, it is my belief that the rapid increase of these growths is sometimes restrained by this agent; and I am therefore accustomed to employ it as one of our best, though but an uncertain remedy. . . . The bromide of potassium has been spoken of as of superior efficacy to the salts of iodine, but the evidence on the subject is of that vague kind on which the temporary reputation of so many remedies in chronic diseases is founded. And I have no personal experience on the subject."

Churchill says, "The two remedies upon which most reliance can be placed are mercurials in small doses, with friction to the abdomen, and iodine." Dr. Ashwell has published (Guy's Hospital Reports) some very interesting investigations into the effect of iodine upon uterine tumors. "The tumors were hard and not ulcerated: some entirely disappeared, others nearly so. The iodine was given internally and applied to the cervix by the finger or whalebone every night." The average time for resolution was from sixteen to eighteen weeks. Dr. Ashwell's inferences from his cases are as follows: "First, the internal administration

of iodine and its use by inunction in hard growths or tumors of the uterus is *decidedly beneficial*, the advantage, if the remedy be judiciously employed, being unattended by constitutional injury. Second, in hard tumors of the walls or cavity of the uterus *resolution* or *disappearance* is *scarcely to be expected*, since the growths are adventitious or parasitic and are not embedded in glandular structure. Here the prevention of further deposit—in other words, *the restraint of the lesion within its present limits, and the improvement of the general health*—will be the extent of the benefit derived. Third, *hard tumors of the cervix, and indurated puckering of the edges of the os* (*conditions which most frequently terminate in ulceration*), *may be melted down and cured by the iodine.*"

Schroeder (Ziemssen's "Cyclopædia of the Practice of Medicine") says, "The remedies most employed are iodine, iodide of potassium, chloride of calcium (especially the English, who believe that it produces an atheromatous degeneration of the vessels), and ergot. Guéniot recommends arsenic and phosphorus for the purpose of producing fatty degeneration. . . . The experiences of the past, especially Hilderbrandt's observations on the *hypodermic use of ergotin*, should incite us to further attempts in this direction. . . . Bergelsdorf (*Berlin. Klin. Wochens*, 1874, No. 2) reports doubtful results (better in chronic metritis)." Keating and Ashhurst (*Am. Jour. Obst.*, vol. vi. p. 139), as well as Goodell (in his report to the Pennsylvania Medical Society on the "Progress of Obstetrics and Gynæcology," 1873, p. 24), agree that "the internal remedies to which has been ascribed the power of influencing the absorption of fibroids, such as iodine, bromine, and chloride of calcium, deserve but little confidence."

Williams (Reynolds's "System of Medicine," vol. v. pp. 763–4) says of iodine, "Its effects are by no means of a satisfactory character," and of bromide of potassium, "Though I have tried it extensively, I have not been able to discover that it has any effect whatever on the growth of the tumor."

It would appear from the distinguished authorities quoted above that medical interference in the treatment of fibroids is almost time wasted; that the remedies are uncertain in their action and effects, and the treatment tedious, protracted, and unsatisfactory; that while there may be isolated cases reported by authorities entitled to the highest respect, as in the reports made by Dr. Ashwell, where continued treatment met with success, the proportion is so small to the general mass undergoing treatment that they are not considered of sufficient importance to justify the recommendation of the method as worthy of confidence in the management of fibroids in general.

It may not be out of place, however, to say that it is very well known that the muscular structure or parenchyma of the uterus is largely supplied with lymphatics and blood-vessels,—larger, of course, in the impregnated state, and larger also in any condition causing hyperæmia,—scattered throughout its organization. It is by these channels that involution takes place so rapidly at the termination of pregnancy. "Within a few weeks," says Carpenter, "after delivery the uterus regains (at least in a healthy subject) its previous condition;" and Flint says, "At from four to six days and seldom later than eight days after parturition, the uterus has sensibly advanced in the process of involution, and it is gradually reduced to the size and structure which it presents during the non-pregnant condition, and their involution is complete at about the end of the second month." The uterus is reduced, in this short time, from one and a half to three pounds in weight (Gray), or twenty-four ounces (Leishman), to eight to ten drachms (Gray), two ounces (Leishman), by a rapid absorption of its soft and friable structure, disintegrated and broken down by fatty degeneration and atrophy of its tissue, the larger proportion being absorbed into the circulation and discharged from the system by the ordinary excretory channels. It is for this reason and through the same channels that septic or deleterious matter can be so readily absorbed from the uterus, through its numerous large and tortuous lymphatics and sinuses. I have seen, and I have no doubt many have witnessed the same, a retained placenta produce all the horrors of septic poisoning and a fatal result in less than a week; and every one is familiar with the action of remedies, the absorption of medicines as applied to the uterine canal,—medicines such as iodine being detected in the urine, and even tasted, in a very short period after its use. Retzius (of Stockholm) and others have frequently

detected fat-globules after parturition, in puerperal women, in the lymph-channels coming from the uterus.

As long ago as 1821, during a course of experiments on absorption of medicines under the auspices of the Academy of Medicine, Philadelphia, at the expense of Dr. Nathaniel Chapman, Drs. Richard Harlan, B. H. Coates, and John V. O'Brien Lawrence being named for the service, the experimenters believed that they had established among propositions—that absorbed fluids pass into the circulation both by the route of the local veins and by that of the lymphatics and lacteals; that absorption by the lymphatics continued as a regular process after the cessation of the circulation and of the animal functions. This was considered an *experimentum crucis*, demonstrating beyond denial the error then entertained by M. Magendie in supposing that the lymphatics absorbed nothing, but were mere instruments for returning the serum of the blood. (See Pareira, vol. i. pp. 165–6.)

Lymphatics are distributed wherever there is a vascular net-work. Their origin cannot be clearly traced, but they seem in general to form a plexus in the substance of the tissues from which the emergent trunks arise (Carpenter); and Flint says, "the function of the lymphatic gland is obscure." So that it would appear that the cause and process of involution, and hardly any other function of the uterus, has never been fully understood or described. All that seems to be really known of involution is that fatty degeneration takes place in the uterine parenchyma, that the muscular fibres, after parturition, present granules and globules of fat in their substance, and, according to Paget, the fibrous substance being absorbed is seen to be dotted by granules (which are known to be oil-particles by their peculiar shining black-edged appearance), and at the same time loses its toughness and elasticity, and is no longer rendered transparent by acetic acid; while the lymph-cells present a similar increase of shining black-edged particles like minute oil-drops, which accumulate until they nearly fill the cell-cavity, their nuclei at the same time gradually fading and disappearing.

Much, therefore, about the function and domain of the lymphatics, deep and superficial, of the uterus, is doubtful or uncertain; enough, however, is known to justify the belief that an important office is performed by the absorbents, both lymphatics and veins, and that they are not only capable of breaking down and softening hardened tissues and presenting them in a suitable condition to be absorbed, but actually do so under stimulus either natural or artificial, and experiments may not be necessary to prove that the uterus is capable of ridding itself of any abnormities, of any extraneous substance connected with its walls or surface, by its own innate power, that wonderful power by which all its other functions are performed.

It does not seem to militate seriously against the proposition that these tumors are remediable, as advanced by Dr. Ashwell, that "in hard tumors of the walls or cavity of the uterus resolution or disappearance is scarcely to be expected, since the growths are adventitious or parasitic, and not embedded in glandular structure," for Klebs says, "Microscopic investigations show that the chief mass of the tumor consists of smooth muscular fibres, which considerably exceed in size those of the unimpregnated uterus," and "the further increase of size of these tumors ensues rarely by the coalescence of several of them; more frequently it takes place by the same process being repeated which gave rise to the smallest and simplest fibromyomata." It is just these hypertrophied bundles of muscular fibres which it is conceived are subject to attack by any means that would arrest their multiplication or enlargement, and possibly might yield to treatment as readily as in any other part of the economy.

I have learned this much from treating quite a number of cases,—cases probably in the incipient stage, and due probably to simple hyperplasia or proliferation of tissue,—that by iodine the hemorrhagic status is changed, the menstrual periods prolonged or made regular, their approach and attack shortened, and the interval made more comfortable; and this is thought sufficient excuse for presenting a subject, based upon the above case, which, though trite, merits continued prosecution.

For those who wish to investigate the subject of fibroids of the uterus, I append the following bibliography:

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TRANSLATIONS.

THE PATHOLOGY AND TREATMENT OF EPIDEMIC CEREBRO-SPINAL MENINGITIS (based upon a study of seventeen cases occurring in Hamburg, and a review of recent literature of cerebro-spinal meningitis).—Dr. Karl Jaffé contributes to the *Deutsches Archiv für Klin. Med.* (January, 1882) an interesting contribution to the knowledge of this subject. He regards epidemic meningitis as an infectious disease characterized by an altogether specific virus, appearing sporadically as well as epidemically, and extended just as well through miasmatic influences as by contagion. The *origin* of the *materies morbi* is as yet undiscovered. As regards the season of the year when most prevalent, it is generally believed that most of the cases occur in the winter and spring; but of the cases reported by the author seven were in the spring, eight in the summer, and only two in the winter. As to sex, the usual preponderance of males is noted, thirteen males to four females; and as to the age, more than half the cases occurred between the twentieth and the thirtieth year. Nothing definite was ascertained with reference to the relations of the residence and mode of life of the patients; at least, no useful conclusions could be drawn from the investigation, and the writer was obliged to fall back upon the nature of the virus itself as the only explanation possible. That such exists can be considered as demonstrated; it also has lately become highly probable that it is less of a miasm than a *contagion;* but whether this contagion is fixed or volatile, living or not, or entirely parasitic in the modern sense, is a question of the highest interest, but whose solution is probably at present only in its first beginnings. Careful examinations of the blood, and of the exudation into the pia, after the method of Koch and others, were made, but with only a negative result. Unless further observation yields more positive results, the conclusion is warranted that epidemic meningitis is not a parasitic infectious disease. That it has many points of similarity with such diseases the author admits. Indeed, he does not deny that in some forms a true pyæmic character is seen; twice he observed endocarditis, five times joint-affections, and once muscular abscess; he concludes, however, that the literature of the last few years has taught us to be cautious in regard to pathological conclusions based upon analogies. He believes that science will be rendered better service by an open and honest "Ignoramus" than by reflections and speculations that busy themselves in setting in place of anything unknown something just as little proved.

In regard to *symptomatology*, little new is observed. In ten cases prodromata were recorded. Headache was noted in fourteen; vomiting in twelve; delirium in ten; in two the delirium was of such furious character that the cases were mistaken for delirium tremens and were sent as such to the hospital. This diagnostic error can be prevented by paying due attention to the history of a sudden beginning, with complete loss of mind, without tremor. The stiff neck occurred in sixteen cases, hyperæsthesia in eight (of which six were cutaneous and two muscular). Anæsthesia occurred in only one patient, in whom, indeed, cutaneous anæsthesia was associated with muscular hyperæsthesia. Disturbances affecting the organs of vision were seen in ten cases (conjunctivitis, keratitis, amaurosis, nystagmus, diplopia, and inequality of the pupils). The ear was affected in one case (otitis media purulenta, with perforation). Diseases of the respiratory organs occurred in four cases (two of pneumonia, and one each of bronchitis and gangrene of lung); of the heart there were two, both of ulcerative pericarditis, one of which was complicated by purulent pericarditis. Enlargement of the spleen was noted in three cases, of which one was supposed during life to have been due to previous malarial infection. Transitory albuminuria was found

only in one; affections of the joints five times.

As regards the *duration* and results of the disease, the time of illness varied from two days to four months; the issue was either in death or recovery. Permanent sequelæ or incomplete cure were not observed; nor were there any relapses. Of the seventeen cases, seven were cured, ten died,—a mortality of fifty-nine per cent. Epidemics usually vary in severity from twenty to seventy per cent., according to Ziemssen, the average being about forty-five per cent.

The *diagnosis* of sporadic cases presents difficulties, especially in the first few days. The differential diagnosis requires the following to be taken into consideration: idiopathic (traumatic) spinal or cerebro-spinal meningitis, tubercular basilar meningitis, typhoid fever, intermittent, asthenic pneumonia, tetanus, delirium tremens, and acute mania.

From traumatic meningitis the specific form may be distinguished by the history; but it must not be forgotten that it is precisely the wounded that are especially liable to suffer from this infection: on the other hand (as one of the cases herein reported witnesses), an individual suffering with cerebro-spinal fever may receive accidental injuries to the skull and yet die of the original disease.

From tubercular meningitis the epidemic form cannot often be distinguished: two cases are mentioned which were mistaken for the latter, and it was only after an autopsy that their true nature was detected.

From typhoid fever meningitis may very soon be distinguished by the want of gastric symptoms, the absence of enlarged spleen, and the spinal symptoms, which in typhoid never appear in such intensity.

An intermittent may be soon recognized through the effects of quinia. Severe pneumonias, especially when they appear during an epidemic of meningitis, may be mistaken for the latter; furthermore, the possibility of a combination of pneumonia with meningitis as a complication must be borne in mind. Only the further course of the disease can clear up this point.

The same observation holds good for tetanus, which, moreover, can only very seldom be brought in question.

For delirium tremens the points of distinction have already been stated above.

Finally, as regards the psychoses (acute and transitory mania, epileptic insanity, and acute delirium) occurring during an epidemic, it is only necessary to bear in mind the possibility of their occurrence: careful and sufficient observation will enable us just here to avoid diagnostic errors the soonest.

The *therapeutics* of this disease are quickly summed up. The author approves of the advice of the older observers with regard to the ice-treatment applied to the spine, and the use of narcotics, without which we can scarcely succeed even in the lightest cases. Blood-letting has only a very transitory effect. Of remedies, laxatives, especially calomel in large doses, are especially valuable. Mercurial inunctions in one case were without any influence worth mentioning. Prolonged bathing cannot generally be carried out; yet tepid and cool baths, when the temperature is high, are very useful. The medicamental antipyretics (quinia, salicylic acid, and also sodium benzoate) may be entirely discarded, because they are more uncertain than the baths, and they ruin the already weakened digestion. He found that the sick were always worse after their use, in the cases in which they were tried, so he finally gave it up. This medical nihilism will appear justified if we consider how largely those affected with meningitis perish, especially with the rapid form of the disease, how protracted is the convalescence, and what lasting injury must follow the use of every remedy and every means (we might here also include blood-letting) which in any way alters the digestive tract and affects the tissue-changes of the patient.

Successful Gastrostomy for Cancer of the Œsophagus.—At the April meeting of the Medical Society of London, Mr. T. Bryant reported a case of an old gentleman, 65 years of age, who had been sick for several months with cancerous stricture of the œsophagus, and unable to swallow anything but milk, in whom gastrostomy was successfully performed on the plan of Mr. House. In the operation, which he divides into two stages, he prefers to puncture the stomach with a small tenotome, making an aperture only large enough to admit a No. 10 catheter. He recommended the performance of the operation as soon as there is difficulty in swallowing solid food, as it retards the progress of the disease and saves much misery to the patient.—*Lancet.*

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, JUNE 3, 1882.

EDITORIAL.

THE AMERICAN MEDICAL ASSOCIATION.

DURING the coming week the American Medical Association will hold its thirty-third annual session at St. Paul, Minnesota, the last meeting having been held at Richmond, Virginia. The principal advantage claimed for the peripatetic principle which has thus far guided the Association in its selection of places of convention is that it permits of a large and more general representation of the profession: held as the meetings are in all parts of the country in succession, it is possible for a number of physicians to attend and become permanent members who otherwise would not be able to do so. This advantage is real, and must not be underrated. By pursuing this plan the Association has nominally become what its founders intended,—a representative body,—and has escaped the control of any section or faction. Probably to this does it largely owe its permanence. At the same time, the report of the treasurer demonstrates the fact that while there is a large accession of new members at each meeting, only a small fraction of them keep up their membership. Hence it is evident that a large proportion of the voting strength of the Association must be composed of those inexperienced in the management of the business of this presumedly representative body of the profession, and, to a greater or less extent, unfamiliar with its history and policy. The danger with such a convention is that it may be taken unawares, and—misled by some plausible but specious plea—may on the spur of the moment, acting upon impulse rather than judgment, commit the Association to a course that would be injurious to the best interests of both it and the profession. That this danger has not been recognized by those most interested in the welfare of the Association it would be folly to assert; indeed, we believe that this very tendency has on several occasions called forth all the powers of the friends of the Association in order to prevent such abuse of authority. We need not point to any specific instance in which bones of contention have appeared, nor shall we assert that designing men have ever sought to make a cat's-paw of the organization for ulterior purposes; but the possibility of the introduction of such measures is a constant menace to the harmony of the meetings. The questions of the abolition of the tax upon quinine and of the publication of a Pharmacopœia are recent topics that led to heated discussion; and neither their discussion nor their decision has added anything to the influence or importance of the American Medical Association. For this reason we hope that the question introduced at the last meeting in regard to patent medicines may be peacefully disposed of,—the more so because these resolutions appear to be entirely unnecessary, as the subject is already provided for in the Code of Ethics.

The danger referred to is not peculiar to the National Association: it threatens the existence of every similar organization, and is at times encountered in our State societies, which, however, are better protected by their more stable membership. The recent action of the New York Society may be cited as an instance of abuse of authority, by which barely fifty men committed the profession of a great State to a course which, outside of their little circle, has been universally condemned.

Two important questions are expected to be brought up at this meeting before the American Medical Association,—(1) the action of secession of the New York State

Medical Society, by its refusal to be any longer governed by the rules of the American Medical Association, and (2) the change in the manner of publication of the proceedings. The first question will doubtless be readily disposed of. Every association has the right of determining the qualifications of its own members. The American Medical Association stipulates that subscription to its Code of Ethics shall be required as an evidence of good standing and fitness for membership. Therefore, until other regulations are adopted, those who refuse to subscribe to the Code exclude themselves and cannot be received, whether as delegates or members by invitation. Permanent members disobeying the injunctions of the law are at any time liable to be refused registration on the formal complaint of any member, proof of the same being laid before the censors.

With regard to the publication of the proceedings, the arguments contained in Dr. Sayre's address are so strong that it can hardly be doubted that a change must soon be made. It is understood that the committee to whom the matter was referred is unanimously in favor of the publication of a periodical (perhaps weekly) journal, after the plan adopted by the British Medical Association. It is important that the difficulties and responsibilities incurred by such a venture should be duly considered and fully appreciated by the members of the Association, so that both their selection of the place of publication and the choice of an editor may be governed by the highest discernment and wisest discretion. The importance of this is recognized by so many that we believe that a final decision will not be reached until more mature deliberation has been held. In the mean time, the adoption of a plan like that of the Michigan State Society, referred to in another column, would have a good effect in stimulating to an earlier appearance the next volume of Transactions.

MEETING OF THE MICHIGAN STATE MEDICAL SOCIETY.

THE State Medical Society of Michigan on May 10 and 11 held its seventeenth annual session, which appears to have been a very satisfactory one. Besides the routine business of the Society, a number of interesting communications were presented and unusual cases reported. Papers were read by Dr. Shurley, of Detroit, on "Laryngeal Phthisis;" Dr. George E. Ramsey, of Lansing, on "Uterine Tumors;" Dr. Eugene Smith, of Detroit, on "Suppurative Catarrh of the Middle Ear;" Dr. Wade, of Holly, on "Antiseptic Treatment of Disease;" Dr. Connor, of Detroit, on "Optic Neuritis considered in some of its Relations to Cerebral Tumors;" Dr. Burr, of Pontiac, on "The Insanity of Masturbation;" and Dr. T. M. Reynolds, of Detroit, on "The Value of Cold Air in the Treatment of Measles and Scarlet Fever." Dr. E. P. Christine reported two cases of malpresentation, in one of which spontaneous evolution occurred. The proceedings were enlivened by a medical poem on "The Æsthetics of Medicine," by Dr. Ward, of Lansing, which was well received. The President's address, by Dr. E. Jerome, of Saginaw, seemed also to meet general approbation.

In order to hasten the appearance of the annual volume of proceedings, resolutions were adopted, which we commend to other societies that complain of the dilatory action of their publication committees. After much discussion, the following resolutions, prepared by the Secretary, Dr. Ranney, were approved:

"*Resolved*, That papers read before this Society and referred to the Committee on Publication, with instructions to publish, shall, at the close of the session, be placed in the hands of the Society ready for printing.

"*Resolved*, That any member reading a paper before the Society is allowed to have such paper printed in any reputable medical journal after sixty days, under the statement, viz., 'Read before the Michigan State Medical Society, and printed in this journal with the consent of the Society.'"

Dr. George M. Topping, of De Witt, was elected President for the ensuing year, and

Kalamazoo was selected as the next place of meeting.

"BEWARE! SHE'S FOOLING THEE."

THE annoyances inherent to the nature of the physician's calling are legion; but assuredly the American doctor is a long-suffering animal, with an endurance equalled only by that of the quadruped with which it is said a former Georgia State law associated him in the bonds of taxation,—namely, the mule. Otherwise should we have had blood upon some Æsculapian lintel, and the newspapers would have detailed the death of some martyr to the commercial spirit,—*i.e.*, of a book-agent or a sample-medicine distributor. Which of these is the greater offender and ought first to be murdered is a very delicate question; but assuredly, for the relief of a suffering profession, one of them ought to be made an example of, and be required to seal with his blood his testimony as to the value of his book or the purity of his compound. The vendor of medical books, who divides the cost of his wares by putting one-half in his own pocket and one-half in that of his publisher,—in other words, who gives the physician half the value of what he pays for,—is a smooth-spoken and insidious rogue; but the oil that lubricates the tongue of his modern compeer puts to shame the smoothest emulsion which this same compeer lauds as the final achievement of pharmaceutical art. To us it is astounding that the trade of the book-agent or that of the sample-monger flourishes; but assuredly "there must be millions in it," for it grows, grows, grows. If every physician would remember that it is the universal rule to pay fifty per cent. premium to the book-agent for selling the books, and that, with some exceptions, books sold by subscription are of the lower grade, the State of Pennsylvania would not be, as it now is, districted off, and each physician studied, his weaknesses noted, his purchasing-power inventoried. Very large and expensive books can sometimes be published only by subscription, because the publisher must have some guarantee against too great loss; but beware, O brother, of finely-illustrated works! In these later days the devil has put it into the hearts of certain of his agents to buy worn-out plates of French and English books and therefrom to print American editions, which are palmed off upon the unsuspecting; though the man who is versed in such matters knows at sight that the prints are nearly worthless,—the mere spectres of their former selves. Anything which the book-agent offers at a cheap rate is certainly very, very nasty, though the nastiness may be somewhat hidden to the unwary victim.

LEADING ARTICLES.

THE OFFICIAL RELATION OF THE GERMAN MEDICAL PROFESSION TO THE GOVERNMENT OF GERMANY: WITH A MORE DETAILED DESCRIPTION OF THE CONDITION OF AFFAIRS IN PRUSSIA.

AS in our country the time is undoubtedly approaching when the medical profession will be represented in our general and local governments, and its potent voice will be heard in the administration of our affairs,—a fact long ago recognized as necessary by all other civilized nations,—and as we can learn only from those whose great experience in these matters has enabled them to establish an almost perfect system of medical representation, it may be well to give a description of the official relation of the German medical profession to the government of Germany, and especially of the very effective regulations existing in Prussia. We may be permitted, however, first to recall to the memory of our readers a few political facts concerning the government of Germany and of Prussia.

As is well known, the German Empire consists of twenty-six States (including the free cities of Hamburg, Bremen, and Lubeck). Of these States, Prussia is by far

the largest and most powerful. Every free city and each State sends representatives to the German Parliament. The latter passes laws of a very general character only, — laws which are first proposed by the Union-Council, or *Bundesrath*, which is constituted in somewhat the same way as the House of Lords, and is presided over by the Chancellor of the Empire. The execution of these laws is left to each State. Prussia, governed by a king, who is also the Emperor of Germany, has, like the other States, a Prime Minister, a Secretary of State, of the Interior, etc., and a Secretary for "spiritual, educational, and medical affairs." The State is divided into a number of provinces, each under the direction of a President (*Ober-Präsident*); the provinces are subdivided into circuits (*Kreise*),—similar to our counties,—and these are under the control of a County Counsellor (*Landrath*). These few facts will be sufficient for our present purpose.

Regarding medical affairs, the German Empire has made only the so-called "Medical and Veterinary Civil Regulations"* the subject of general laws. To these belong: (1) *The examination of aliments* (general law of May 4, 1879: protection against adulteration of common articles of food and such as are used for enjoyment, and of certain other substances which are daily employed); (2) *vaccination* (general law of April 8, 1874, regulating compulsory vaccination throughout the Empire); (3) *the qualification to practise medicine* by special permit for the whole Empire. The practice itself is free,—*i.e.*, anybody can practise medicine, whether a medical doctor or not; but then he does so at his own risk; he cannot collect a bill, or issue a certificate of death, and he is prosecuted criminally if anything should happen to his patients, or if he calls himself "Arzt" (*i.e.*, physician) on his sign or card. Either he must give any patients he may get to understand fully that he is no physician, or the State's Attorney is bound to prosecute him, when, on conviction, the punishment is very severe,—from two to twenty years in the penitentiary, with solitary confinement and hard labor. In case of the death of a patient of such an individual, the latter is charged with murder. The title "physician" is given only after the candidate has passed the very difficult State's examination; and, as very seldom is anybody able to pass this examination who has not finished his four-and-a-half-years' course of studies at one of the different universities of the Empire (the State's examination being based upon the knowledge expected as a result of these studies), it is very rare for other than graduates to have the title of physician in Germany; and it is this title which gives its possessor the same right and immunity to practise which, in Pennsylvania, any person enjoys who has received the degree from a regularly-chartered college and recorded his diploma with the clerk of the county court. Occasionally it may happen that a candidate, after having finished his medical studies, has not the means to procure the title M.D. at a university. In such a case he passes first the State's examination, but as soon afterwards as he is financially able to do so, he procures his M.D. If a person wishes to practise homœopathy (gradually dying out in Germany), he has to pursue exactly the same studies as any other medical student, with only this difference: he must attend also the lectures of the professor of homœopathy, such a chair being provided for at almost every university in Germany. But the fact that a homœopathic physician in that country has to go through the same studies and pass the same severe examination in all the branches as the "regular" physician has brought about the expected result: homœopathy, which was for a time somewhat fashionable in Germany, is daily less practised there. (4) *The establishment of a Board of Health of the Empire.*—This is only a technical authority, without administrative power, is immediately subordinated to the Chancellor of the Empire, and has to do the preliminary work in devising laws, etc., especially such as concern the public health. This Board may be considered as the authority which the Chancellor consults in medical affairs, and the whole machinery of the government is employed in executing the laws emanating from this Board. Everything else concerning medical matters, as well as the execution of the general laws just mentioned, is left to the government of each State.

In Prussia, the best-governed of all the German States, the following regulations have been in force for a number of years:

* In German, "Medicinal- und Veterinär-Politzei": literally, "Medical and Veterinary Police."

1. *The Central Government* is the department of spiritual, educational, and medical affairs in charge of the Secretary of this department.

The medical division of the latter consists of a director and of three kinds of counsellors,—viz., (1) those who have to make a verbal report to the Secretary of any laws and other propositions of this division, and who are expected to give him any information he may wish on a medical subject; (2) those who have to attend to all technical work; and (3) those whose labor is administrative in character. The first class are called "actual" (*wirkliche*) counsellors, and receive the title "Excellency." The members of this division are selected from among eminent physicians in civil life, proposed by the Secretary to the king, and appointed by the latter. This division has the following labor to perform:

a. The supervision and direction of the whole Medical and Sanitary Civil Regulations, with the exception of veterinary affairs, which belong to the province of the Secretary of the Department of Agriculture, and such matters as are regulated by general laws of the Empire, the execution of which this division has to direct and superintend.

b. The control of the qualification of medical persons, and disciplinary power over those who are in the service of the State.

c. Superintendence and inspection of all public and private hospitals and other institutions for the sick.

Immediately subordinated to the Secretary are the following two boards, which are advisory in character:

a. The Scientific Deputation for medical affairs, sitting in Berlin, a consulting board called together by royal appointment. This board has to note carefully the scientific development of medicine, and to assist, by the employment of any results gained by the latest researches, the direction of the administration. The board has also to communicate the scientific principles which are to guide the government, and to give its opinion in all cases concerning the administration, and in criminal cases, when such opinion is asked for by the Secretary of any department as the final decision of the highest tribunal in such matters. Another function of this Deputation consists in the examination of all higher medical officers of the government.

b. A technical commission for *pharmaceutical* affairs. This commission has to give the final decision in all questions concerning pharmaceutical matters, to revise from time to time the price-list for medicines, etc.

2. The *Provincial* authority for medical affairs consists of the *Medical Collegia*, under the direction of the President of the province. The medical collegia are also advisory boards in scientific and technical matters. They have no administrative power, but they give their opinion in forensic cases, and revise, when they think necessary, the medical tariff; they superintend the medical civil regulations of the province, take all necessary measures in cases of epidemics, make analyses of mineral waters and of water used for drinking, etc., and compile medical statistics. The President of the province is for all these cases the executive officer.

3. *Circuit Medical Boards.*—In each circuit there is a medical board. The County Counsellor is the chief officer of the Circuit Medical Civil Regulations. As his aids he has the actual medical officers,—the circuit physician, the circuit surgeon, and the circuit veterinary surgeon.

The *Circuit Physician*, appointed by the Secretary of the department after special examination by the Scientific Deputation, has control over all medical persons of his circuit as far as concerns the medical civil regulations and public sanitary measures; he is the expert before the courts of his circuit, and has to make the post-mortem examination in all accidents and suspicious and criminal cases.

The *Circuit Surgeon* is subordinated to the physician, but can be authorized to perform the functions of the latter. He is especially surgeon for the courts.

4. *Local Medical Boards* exist only in the larger cities. They are special sanitary commissions, consisting of the chief of the local police, the head of the local government, and several physicians. They officiate mainly in epidemics, decide questions of hygiene, and are partly advisory, partly executive, in character.

No other *official* organization and representation of the medical profession in Germany exists; but the interests of the profession are guarded in the same way as in

our country by county and State medical associations and local societies very similar to ours.

To illustrate the working of the above-described machinery, we will show its action in forensic cases. Suppose a person is accused of having killed somebody by poisoning. The circuit physician has to make the post-mortem and the chemical analysis. He is the impartial expert before the court. The defence has not the right of bringing any other physician as expert; but if it is not satisfied with the testimony of the official expert, who is subject to cross-examination, an appeal can be taken to the medical collegium of the province, and the examined viscera, as well as the testimony of the circuit physician, are sent to the collegium. From the latter, again, an appeal may be taken to the Secretary of the department, who submits everything pertaining to the medical part of the case to the Scientific Deputation, whose decision is final. A wrangle between so-called experts on both sides, such as we have to witness so often in our courts, and which degrades our profession in the eyes of the public, is never experienced in Germany, and at the same time more justice is done to such a case, after having passed through the different tribunals, than is possible in the United States: naturally the medical expert is far more esteemed by the public than is the rule in this country. Should our government adopt similar regulations in regard to the representation of the medical profession in the administration, the government would reap the benefit on one hand, while on the other the public would gain in two ways,—by the more effective prevention of disease in consequence of the general adoption of better sanitary measures, and by the higher standard of medical education which would necessarily follow.

CORRESPONDENCE.

LONDON LETTER.

A GENERAL quietness prevails among the profession here, and no book of much moment is out, except that of Mr. Watson Cheyne on the antiseptic system,—a subject on which he is indeed well qualified to speak and write. The last excitement has been the bacillus of tubercle of Dr. Koch, which is quite an illustrious stranger. Some slides of the learned German's have been brought over and exhibited in the rooms of King's College. It appears that recently a systematic search has been instituted for the morbific organisms which belong to certain forms of disease. This is conducted with every precaution to keep each breed distinct. Not that any *mésalliance* is apprehended with these lowly creatures: probably kind only mates with kind, like buck and doe and stag and hind in localities where the red deer and the roe deer live together. Miscegenation is not the difficulty; but the tiny mites of creatures require a good deal of discrimination to identify them, even with a good microscope and a trained eye. For some time a difficulty existed as to the staining agent which should be adopted to bring out the little fellows in sharply-defined outlines, so as to identify each species of them. At last aniline has done for the bacilli what it has done for the tussah-silks of India,—namely, dyed them satisfactorily. The thin ribbon-like silk fibre of the uncultivated silk-worm would not take the dye which readily colored the small round fibre of the silk-worm of commerce; but aniline has solved the difficulty, and the tussah-silk to be seen at South Kensington is beautiful in hue and lustre. So with the bacillus. The difficulty was, he would not take dye kindly, and so his identification was doubtful. They have individualities or preferences, too, it seems, minute as they are. Methyl violet was a good dye, but the spirillum of relapsing fever would have nothing whatever to do with methyl violet, and had an affinity for aniline brown. The staining agent most liked by our new acquaintances is gentian violet; but Dr. Koch prefers methylen blue. Having got over this difficulty, then came the best means of fixing the material on the slide, and some other minutiæ interesting only to those who are going to hunt for minute beings; and such persons will not look for information to the London correspondent of the *Philadelphia Medical Times:* it is scarcely in his line. His remarks must be of general interest, whether a little acrid gossip or a clinical observation of real weight in practice.

Having received an invitation from Mr. Watson Cheyne to be present at the demonstration, your correspondent went, as in duty bound. Down several flights of steps, along some labyrinthine passages, quite underground enough to be getting on the level of the sewer of the Thames embankment; at last a distinct smell told of animal tissues in a state which would bring a butcher into trouble with the authorities, as well as of oil of cloves and other odoriferous matters connected with microscopy. A dingy room, reminding one of the Esterhazy cellar in Vienna, with the lights of several microscopic lamps alone to relieve the gloom, and here was the little stranger to whom he was to be introduced. Powerful microscopes, evidently: that was the first ob-

servation. Finding one without an eye applied to it, your correspondent looked down the tube. On a salmon-colored ground were to be seen, in sharp outline, some small deep-blue objects,—that kind of blue which exercises the mind of the modern potter,—an intense blue. They might have been fragments of amethysts from the magic gardens of the "Arabian Nights"! Of course a stranger could not be sure of its identity; but there was no doubt that there were no questionings to be entertained as to the individual: there were those present who could swear to each, as clearly as an old Bow Street runner to a thief he knew. Then to another microscope. Looking down it, there was a field which reminded one of nothing so much as the salmon-roe used for angling purposes: there was the general color, and little bodies of deeper hue than the groundwork, like the berries of the roe. Then a direction was kindly volunteered to the amateur microscopist to look into the middle of the field, and a something would be seen bearing a faint resemblance to a cross-bow. Yes, there was such an object; but closer observation resolved it into two tiny lines nearly at right angles. Those were the bacilli of tubercle. Yes, "the germs of phthisis" were to be seen at last, in a form very different from what was understood when some poor victim of consumption was referred to clinically. The germs of phthisis looked more like two hairs of a beard a week old on a barber's razor-cloth than anything else to which the writer can liken them; but, nevertheless, there they were. Innocent-looking objects enough, fixed on that microscopic slide: they did not seem capable of all the iniquity they and theirs have perpetrated. Two small rods of violet-blue in a field of salmon-roe! There was the pathology of pulmonary tuberculosis, the fell enemy of our race. Well, two of these tiny villains were gibbeted, sure enough, to be stared at, as I suppose gibbeted objects usually were. *Homo bimanus* had the best of his enemy this time, anyhow. Then the crowd gathered thicker and thicker in the limited area of the dungeon-cell; for that was all it could be called. There was an opportunity for looking down one more microscope, and the writer availed himself thereof. Another salmon-colored field with some violet objects; these were violet, and not blue. Man is a "color-stupid" creature except in a ribbon-shop; but these were violet, that may be safely averred. They were the spores found in erysipelas, it seems. Seeing that these objects were under a magnifying power of one thousand diameters, or even more, some conception can be formed how minute they are. But they were spoken of with bated breath, these terrible enemies of man, and that, too, by men who are neither the most timorous nor the most credulous of their race. Respect, too, was not wanting in the attention paid to them. Since the days when the Iroquois sachems came to good Queen Anne with offers to the Britisher to wield the tomahawk and scalp the French settlers on the northern banks of the St. Lawrence, an amiable readiness to be useful in the massacre line, of which George the Third availed himself without much scruple when the New England provinces rose against his rule,—probably since then no visitors have excited more intense curiosity. I was in Vienna when the Hungarian Lostörfer thought he had succeeded in fixing the specific spore of syphilis,—also an insignificant object,—and remember the excitement; but it soon evaporated, and since then the syphilis spore has relapsed into its primitive obscurity, conspicuous enough still in its ravages, but not stuck to a glass slide and looked at through a microscope,—a very proper distance to keep it at! There were, too, some very respectable personages having a sight at the bacillus of tubercle, *alias* the germs of phthisis, in that dingy, strong-smelling, dungeon-like room far underground. First there was Prof. Lister, his benignant-looking face beaming with a scientific satisfaction at the minute specks possessing such dire capacities here exhibited. Then there was Dr. Matthews Duncan, the famous gynæcologist, who left Edinburgh for London about the time Prof. Lister flitted south. He was studying the germs; though not in his line, still there are tiny cell-growths found in the abdominal fluid at times which indicate that the removal of an ovarian cyst will be followed by a malignant outgrowth upon the peritoneal surface; and so he is familiar with the microscope. Not far away, and bearing a strong personal resemblance to the strongly-marked, characteristic face of the gynæcologist, was Dr. Thin, a well-known observer of the skin and of the parasites, vegetable and animal, which infest it, as well as of some other parasites, as the *Filaria hominis sanguinis*. Then there was Dr. Stephen Mackenzie (brother of the famous authority on the larynx), who recently exhibited a patient with this *filaria* in his blood: he and a number of others had come to interview the illustrious strangers and take the measure of them. Bacteria, spirilli, bacilli,—the crowd thickens: we are likely to hear a good deal of these new acquaintances for some time to come.

One of the array of young hospital men who are ardent believers in the microscope as the finger-post of future pathology told me the other day, with quite a serious face and an air of sincerity which was ample voucher for his good faith, that a germ was in all probability at the bottom of acute rheumatism, instancing the points of resemblance betwixt it and pyæmia in affecting the articulations and the cardiac valves. A shudder went through my frame at the thought, But may not gout, too, be due to a germ? and then where were we poor, despised humoral pathologists, that were credulous enough to talk of gout-poison, to

hide our diminished heads? The thought positively stung; it was acutely painful. However, after a little time, the smart of the sting went off, and the rhomb of uric acid and the "crab's-eye" of urate of soda were clearly distinct on the mental retina once more.

Well, to revert to the germs of phthisis. Prof. Lister approached, and, feeling that if there is a man on the face of the earth who knows an homicidal germ when he sees it, it is Prof. Lister, I asked him if he thought the organisms were what they were represented to be. His answer assured me, and I felt certain that these lowly objects were the dread enemies of the human race, and no mistake about it. I inquired how we were to poison them, as that seemed the practical way of dealing with the miscreants. That did not seem so clear: still, he held that they were the malevolent agents in phthisis,—"the morbific agents;" that is the correct term for them.

Now, by this time I was feeling decidedly murderous about these tiny assassins; and yet it did not seem at all clear what was to be done about them. A refreshing sensation like that produced by the first rustle of the leaves telling of a coming breeze on a still, thundery summer evening came over me: might not these little homicides, after all, be but the outcomes, not the causes, of tubercular disease? Instead of being the exciting cause of the tissue-change, lymphoid growth, degraded connective tissue, tubercle, or however the neoplasm may be termed, may not these bacilli find in the morbid change a fit breeding-ground, a home to their taste, just as the Solan goose frequents the Bass Rock? The rock which the Covenanters disliked as an uncongenial prison is the haunt of the gannet at breeding-time. So it seemed that tubercle, which we human bipeds dislike so much, may be to these bacilli what the Bass is to the gannet. The bacillus may carry tuberculosis from one human being to another; but if that is his mission there is no doubt that man will soon bring all his ingenuity to bear upon him and frustrate his scheme, if that be possible. Phthisis is regarded as "smittle" (a good old Saxon word covering both "infectious" and "contagious"—see Webster's Unabridged) by the Italians, and was unknown in the islands of the Australasian groups till white sailors visited them. But is it really this abominable little spore which is at the bottom of it all? Why does he attach himself to certain families more than others, or frequent persons who have been so unfortunate as to sleep in a damp bed, or dwell over a stream, or live on clay, all of which are recognized as being linked with phthisis pulmonalis? A certain configuration of chest is as certainly found with phthisis as another configuration is clear of it. Why the mischief, then, does the malignant bacillus go down the trachea of one person rather than another? On putting the matter, couched in more formal phrase, to Prof. Lister, he replied, "Why does the phylloxera destroy some vines rather than others?" Here was an opportunity for showing off and parading a scrap of information in my possession: so I replied, "That is known. The phylloxera ravages the grape-vines that have not been recently in the seed. The finest clarets of France are produced from grape-vines which have not been in the seed for hundreds of years, but are grown from cuttings: they have suffered severely. The wild grape-vines of America, which have been in the seed within recent years, suffer little. They possess more resistive power." The professor smiled, with a look of approbation, and said, "Aha! it is the resistive power: some can resist the bacillus, others cannot." Now, this was aggravating. There were the kinsfolk of these innocent-looking little bodies trying to murder me and my wife and the few blood relations I have that gout and heart-lesions have left alive. The insidious assassins! getting down one's air-tubes till they got near enough to the fine blood-vessels, and then wriggling about till their presence excited a cell-growth down about the alveoli, and killing us with tubercle. Something may be done to arrest the formation of uric acid by abstinence in the matter of albuminoids and giving the liver every chance for carrying on the metabolism of the albuminoids that are eaten in a manner proper to a mammalian, instead of producing the uric acid of lower animals with a solid urine, and, if this is insufficient, getting rid of it in a soluble form by potash or lithia. But these bacilli,—one has no protection against them but such as is furnished by that incalculable quantity the "resistive power." Why, one may be as good as dead any day, if a swarm of these miscreants happen to be drawn in with an inspiration! and how is one to know when myriads of them are about, the invisible motes giving no more indication of their presence than an anchored torpedo, and being quite as destructive, too?

Then what can be the subjective sensations of the shade of Laennec when he hears of this bacillus of tubercle?—when he wrote, "The progress of pathological anatomy has successfully demonstrated that phthisis pulmonalis is owing to the development in the lungs of a particular species of *accidental production*, to which modern anatomists have restricted the name tubercle, a term formerly applied to every kind of preternatural tumor or protuberance;" explaining, "Under the term *accidental production* I comprehend every substance foreign to the natural organization of a part which any aberration in the nutrition may develop in our organs;" and then to think that, after all, it is an errant nomad bacillus that tumbles down one's windpipe, and getting farther and farther till it can get no farther, trying to turn about, and

so exciting the tissues and blood-vessels by its irritant presence that tubercle results,—"miliary," "crude," "granular," and "encysted:" —oh, Laennec! when you made your subtile divisions how did it happen that you so egregiously failed to find "the accidental production" to depend on an organism like a tiny stick, which is the starting-point of it all? You and Rokitansky disagreeing about miliary tubercle and yellow or bronchial tuberculosis; and Rudolf Virchow with his cells, and his imaginings that tubercle-cells are but modifications of connective-tissue corpuscles; and all the talk there has been about the artificial production of tubercle; and Villemin fooling around infecting guinea-pigs and rabbits which run to tubercle or lymphoid growths —put it as you like—on any kind of provocation, as if on purpose to mislead science, or as if they might have been the incarnation of the *odium theologicum!*—dear me! to think what trouble and labor would have been spared if these men had only been familiar with aniline dyes, and could have suspected that a little methylen blue would have revealed the whole matter to them! Just to think how the spirits of the illustrious men which have already joined the majority will be vexed to think over what they have missed! and then of these other two, with a large retinue or following of other observers that have gone on in their track, in sheer chagrin going over to the majority, too. What would Bismarck say? Why, he would think the storm brewing betwixt Sclav and Teuton a trifle if his great liberal opponent, Rudolf Virchow, were removed by a bacillus. Why, Bismarck would wear a breast-pin composed of the bacilli of tubercle, if this end were to be consummated by its means. Dr. Koch, have you fully realized all the outcomes of your discovery,—those that may be calculated and those that cannot? The profoundest political results to your country may flow from its indirect outcomes, as well, more remotely, the destiny of man on the globe. Now that he knows his enemy, who no longer goeth about like a thief in the night, unrecognized, nay, unsuspected, man, the lord of creation, will set to work to discover some toxic agent which will destroy the bacillus without killing the human being which furnishes his habitation. I have read that there will be no peace upon earth till the order of precedence for the wives of undersecretaries in India in entering a drawing-room is definitely settled; but now it is clear that there can be no peace of mind until the specific poison of the bacillus of tubercle has been discovered, and not only that, but also been made available for the wants of man. Until this be done, must we cower in the valley of the shadow of death till the enemy which walketh like a pestilence in darkness shall consume us? And then when it has been discovered, fancy to have to sit under the protection of a cloud of this toxic agent, just as Prof. Lister operates under the carbolic cloud of his steam spray-producer, and in fear and trembling peer out for the dreaded presence of the bacillus of tubercle, shuddering with chilly fear if one hears the hollow cough of a consumptive in one's waiting-room! Talk of the bitterness of death! it is nothing to the shadowy danger which overhangs us of a tubercle-bacillus getting into one's pulmonary alveoli in an unguarded moment and when one's "resistive power" happens to be impaired. Shadowy in the sense of invisible, not unreal! Is this what is meant by "the doom of a great city"? Is the bacillus a relative of the poison-germ which slew Sennacherib's host in a night? We do not yet know the little creature intimately enough to say. But, really, the horrors which the mind conjures up of the dangers of the bacillus in the future are demoralizing. Suppose, now, that some change of the human constitution should favor the bacillus, just as the potato-field did the Colorado beetle, who had been happily quiet in his dietary of the leaves of the deadly nightshade, but who went on the war-path when the leaves of the other members of the Solanaceæ came within his reach. The imagination fails to conceive what may be the fate of man,—to be slain by a foe more remorseless than any of the plagues of Egypt. Suppose, now, that the bacillus took such a new departure and got ahead of our "resistive power." Why, man would be swept off the face of the earth! What an ignominious end, too! Man, in the plenitude of his power over the forces of nature, slain by an insignificant little bacillus!

J. MILNER FOTHERGILL.

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BOSTON LETTER.

MR. EDITOR,—The friends of the medical education of women at Harvard have just made another attempt to open the doors of the Medical School to the other sex, with a result which, by the terms adopted to convey the information, is made to appear more unanimous and decided than it really was. At a recent meeting of the overseers of Harvard University, the Committee upon the Medical Education of Women presented its report. After a discussion of more than two hours' duration, it was voted—thirteen to twelve (a suggestively close ballot)—that, "in the opinion of this board, it is not advisable for the University to give any assurance or hold out any encouragement that it will undertake the medical education of women by Harvard College in its Medical School." Of the twenty members of the medical faculty proper, nineteen are decidedly opposed to the admission of women; only one favors it. The final decision is said to rest with the corporation of seven persons, who, it is believed,

will sustain the majority of the overseers and the medical faculty.

This new attempt to graft co-education upon our Medical School was the outcome of a recent offer of sixty thousand dollars to the University conditioned upon the immediate admission of women as medical students. President Eliot, it is said, got the matter well started before it came to the ears of the medical faculty. When that happened, however, the effect was decidedly electric. One member in particular, in a remarkably brief period of time, did an amount of canvassing which was not only characteristic of this gentleman's energy when he does move, but which accomplished a wide margin of results. Among the reasons advanced by the medical faculty for the non-admission of women are—first, that the school was founded and has been sustained for the medical education of men, and that it would be perverted from this purpose if women were admitted; second, that the high standard of education which is now the pride of the school would have to be lowered; third, that the school has but recently adopted the four-years term of study, and hence cannot afford to risk new experiments. In short, the faculty do not wish the admission of women, and if this should ever be forced upon the school, serious harm will undoubtedly result. It is strange that women desire to push themselves into this school. Far more natural would be the wiser course,—viz., solicitation of funds from friends of the movement for the foundation of a school for the separate and thorough medical education of such women as wish to become physicians. This would evince a proper pride and far more dignity than this attempt of women to enter a school which does not desire their presence. It has always seemed to me that there must be some loose joint in the mental machines of men who are willing to study medicine with women. If women wish to study medicine, let them do so, but let it be in their own schools, and when they enter the arena of practice, in the words of Huxley, "let them have a fair field, but let them understand, as the necessary correlative, that they are to have no favor. Let nature alone sit high above the lists, 'rain influence, and judge the prize.' And the result. For our parts, . . . we believe it will be that of other emancipations. Women will find their place, and it will neither be that in which they have been held, nor that to which they aspire. Nature's old Salique law will not be repealed, and no change of dynasty will be effected. The big chests, the massive brains and stout frames of the best men will carry the day whenever it is worth their while to contest the prizes of life with the best women. And the hardship of it is that the very improvement of the women will lessen their chances. Better mothers will bring forth better sons, and the impetus gained by the one sex will be transmitted in the next generation to the other. The most Darwinian of theorists will not venture to propound the doctrine that the physical disabilities under which women have hitherto labored in the struggle for existence with men are likely to be removed by even the most skilfully conducted process of educational selection. In consequence of some domestic difficulties, Sydney Smith is said to have suggested that it would have been good for the human race had the model offered by the hive been followed, and had all the working part of the female community been neuters. Failing any thorough-going reform of this kind, we see nothing for it but the old division of humanity into men potentially or actually fathers and women potentially if not actually mothers. And we fear that so long as this potential motherhood is their lot, women will be heavily weighted in the race for life." In this opinion Huxley refers not only to women who wish to become physicians, but also to those who look towards law and politics.

It probably is true that President Eliot cares little whether women be admitted to the existing medical department of the University or whether they have an independent school of their own, so long as it be under the auspices of the University. He believes that at least half a million of dollars will be necessary to carry on the work, and feels confident that this amount can be obtained without much difficulty. And, notwithstanding the failure of this recent attempt, the matter will hardly be allowed to rest; for the twelve-to-thirteen vote of the overseers indicates a lively interest in the question, and sooner or later we shall see women studying medicine under the shades of Harvard. But may all wise minds hope that this will be in a department specially devoted to women! *Co*-education in medicine will not be reached without a warm battle.

One year from to-day will probably see the old Medical School in the new building, now in process of construction. Three stories of the structure were erected before cold weather set in, and the work has been resumed. The building stands on a lot bordered by Boylston and Exeter Streets, and is therefore in the very heart of the new portion of the city, and becomes one of the fine and sightly buildings in its vicinity,—viz., Trinity and New Old South Churches, Art Museum, Boston Art Club Building, etc. It will be a handsome, stately structure, occupying a lot of land 264 × 125 feet, itself having a frontage of 123 feet on Boylston Street, 100 feet on Exeter Street, and 131 feet on the rear lane. The remainder of the lot forms towards the east a yard 125 × 100 feet, which will be enclosed by high brick walls and serve for horse-sheds and other convenient out-buildings. The architecture of the building will be a freely-treated style of the Renaissance, with mouldings, lintels, etc., of red sandstone and decorative

panels of terra-cotta. It will have four stories, and a flat roof surrounded by a sky-line of stone balustrades and low gables. Its height will be 77 feet from the sidewalk to balustrade top. The main front will present three pavilions, the central one being slightly depressed. These pavilions are façades of the two main divisions of the building, which enclose an immense staircase in the centre, 41 × 35 feet. The remainder of the central division will be occupied in all the stories by offices and other appendages of the larger rooms of the two lateral divisions. These smaller rooms are half-stories, "mezzanines." The central pavilion will therefore have six stories, the lateral ones only four. More detailed description must be reserved for another occasion. The building, of course, will amply provide every possible convenience, every modern improvement, and every known aid to the course of instruction pursued in the school. The locality is conveniently chosen with reference to the Massachusetts General and City Hospitals, and the Boston Dispensary, at each of which places students receive clinical instruction. The old school building, once thought elegant and commodious, is really dingy and uncomfortably contracted, its situation being in an uncongenial and squalid portion of the city. The public have liberally contributed two hundred and fifty thousand dollars to the new building, and no expense will be spared to render it perfect in every direction. In the third story of the building will be a hall 80 feet long and 34 feet wide in one part and 48 feet in another, which will be devoted to the well-known museum of the school. Galleries will be erected, and the hall will be decorated with portraits, busts, etc. The change will be most agreeable to both teachers and students. At no great distance from the new structure the Children's Hospital is in process of erection. This institution will occupy a lot measuring 31,000 feet. The building will probably cost one hundred and twenty-five thousand dollars, and is required by the growing demands upon the hospital, which was organized thirteen years ago. Through the activity of ladies under the name of the Ladies' Aid Association, the hospital has a Convalescent Home, which naturally is a most useful auxiliary in the restoration of the patients to health.

A "convalescent cottage" at Belmont, a few miles out of the city, has recently been completed, at an expense of one hundred thousand dollars, for the use of the Massachusetts General Hospital. A fund amounting already to more than one hundred and thirty thousand dollars has been accumulated for the purpose of removing the insane department of this hospital from Somerville to its estate in Belmont. It has been wisely suggested that the buildings now in use by the insane at Somerville may be converted into a hospital for incurables, a resort sadly needed by this as well as by other cities of our country.

The experiment of exacting a nominal fee from all save very poor applicants to the outpatient department of this hospital has been abandoned as unadvisable. In April of last year a person of experience was chosen to examine applicants, in order to learn whether their circumstances entitled them to gratuitous treatment. Of twelve hundred and fifty cases visited, five hundred and forty-five were pronounced undeserving of charitable aid. The committee believe that the general opinion that, whatever the means of the sufferer, sickness entitles him to free advice and treatment, is very dangerous, inasmuch as its tendency is "to impair the spirit of providence and self-dependence so essential to good citizenship, and that the aim of the investigation of cases now in force should be rather to prevent than detect improper applications for treatment." The intention, therefore, is to do whatever is possible "to check a tendency which is believed to have assumed the proportions of a great evil."

The division of the Suffolk District Society into Sections has proved a successful incentive to greater activity. The former monthly meetings of this branch of our State Society had become rather sleepy, and, moreover, considerably mixed as to subjects. The present secretary, Dr. H. C. Haven, suggested the Section arrangement. It was carried into effect, and the Sections thus far in action—viz., of Surgery, of Clinical Medicine and Pathology, of Ophthalmology, and of Materia Medica and Chemistry—are doing good and useful work. Indeed, the Section for Clinical Medicine has been obliged to increase the number of its meetings in order to work off the papers which are waiting their turn. In short, this method arouses and holds the interest of members. The favorite Section is chosen, and those who attend its meetings are entertained by topics of direct interest, whereas at the former general meetings the papers were so diverse in subject that many of them were of interest to few only. The result is that more active discussion is aroused, and more good, helpful work is done by the Sections of one season than would be accomplished by two seasons of the heretofore eclectic programmes of the meetings of the whole District Society. These general gatherings are still called, but are far less attractive than the earnest, active sessions of the Sections. The change is wise and beneficial.

A portrait in oil of the late Dr. Thomas B. Curtis, and formerly President of the Society for Medical Improvement, was unveiled last night at the final meeting of the Society for this season. The likeness is excellent, and the portrait will be highly valued.

In closing, let me relate a story which I recently came across in a very old book,—a story which I am sure will convince you, as it did

me, not only that the diagnosis of hysteria is not a development of recent date, but that shrewd means of treating this affection are not confined to our day. A beautiful and favorite slave of the Caliph Haroun-al-Raschid happening to yawn, one of her arms suddenly stiffened. The whole seraglio was thrown into consternation. Physicians embrocated the limb with relaxing liniments and fumigated it with fragrant antispasmodic gums; but nothing availed. The eunuchs groaned; the women were in floods of tears; the Caliph became absorbed in grief. In the midst of this distress, the Grand Vizier, having been cured of some secret indisposition by Gabriel Bachtishna, extolled his wonderful skill to the Caliph. In a moment the captain of the guard was despatched for the unknown physician. Gabriel having arrived, the melancholy and extraordinary case was described to him. After a few moments spent in silent reflection, he said, "Commander of the Faithful, I have found a remedy!" "What?" cried the Caliph. "Let the young lady be brought here, and I request a promise that you will not be offended while, before all this presence, I do what I consider requisite for her cure." The Caliph assented. The afflicted girl was introduced, having only a fine piece of flowered muslin negligently thrown about her. She was rendered more interesting by her raised arm having fixed itself in a graceful attitude. As soon as she entered, Gabriel boldly advanced, stooped, and grasped the fringe of her train as if resolved to lift it. The lady, confused and crimsoned, instinctively brought down her arm to preserve the propriety of her dress and to hinder the threatened indignity,—upon which Gabriel exclaimed, "O Commander of the Faithful, she is cured!" All present were amazed, and the Caliph was so transported that he ordered five hundred thousand pieces of money to be paid instantly to the fortunate physician. H. O.

BOSTON, May 10, 1882.

PROCEEDINGS OF SOCIETIES.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

THURSDAY EVENING, MARCH 9, 1882.

The PRESIDENT, DR. S. W. GROSS, in the chair.

Cirrhosis of liver. Exhibited by Dr. NEFF.

THERE was no history accompanying this specimen, Dr. NEFF said, beyond that it had been removed from the body of an elderly inebriate. What had induced him to present it was the peculiar appearance presented of bright-yellow elevated spots, produced, as suggested by Dr. Seiler, by the pressure of congestion forcing out the fattily-degenerated cells of the organ. There was also stenosis of the aortic orifice, with some thickening of the mitral valves.

Dr. TYSON remarked on the peculiarity of the changes in the heart,—viz., the extent of the stenosis of the aortic orifice, as such change is usually more extensive at the mitral orifice.

Fibroid polypus of the nose involving the antrum.

A. L., a farmer, æt. 68, was sent to me by Dr. Woodward, of West Chester, early in December of last year, for operation. I examined the patient, and found the left nostril completely closed by a hard, lobulated mass. The left cheek-bone was very prominent, and the left eye was pushed out of the orbit so as to be exceedingly prominent. In passing my finger over the outer wall of the antrum, I discovered a triangular opening in the bone, through which a soft mass was protruding. The affected eye was constantly weeping, and the patient complained of severe neuralgic pain in the left side of his face. He stated that he had noticed several years back that his nose was stopped up, and the pain in the face had made its appearance about six months since. With the wire snare I removed several pieces of the growth from the nostril, and on examination found them to consist of fibrous tissue. The diagnosis of fibroid polypus involving the antrum was then made, and the patient referred to Dr. J. Ashhurst, Jr., for operation.

A few days later, the patient was operated upon in the clinic at the University Hospital, and this large mass of fibroid polypus was removed. During the operation it was found that the anterior wall of the antrum as well as the orbital plate had been almost entirely absorbed, and the turbinated bones on that side of the nasal cavity had disappeared. The hemorrhage was very profuse, and the patient died an hour after the operation was finished.

Dr. BARTON had seen several similar cases, but they had all proved to be malignant. He would therefore suggest the propriety of making sections of the whole growth, when portions might then be seen which would be of a malignant nature.

Dr. SEILER thought that the cases described by Dr. Barton were not true fibromata, but *fibrous polypi*, in which were found invaginated mucous membrane, angeiomatous tissue normal to the inferior turbinated bones, etc. Nasal fibromata are usually single, unlike ordinary polypi. The former usually *press* the septum to one side, while they induce *erosion* of the superior maxilla.

Dr. TYSON could corroborate the last portion of Dr. Seiler's remarks from personal observation.

Carcinoma of bladder and uterus. Exhibited by Dr. J. M. BARTON.

No written history accompanied this case, owing to the patient having unexpectedly

expired the night previous. There had been nothing of special interest in the case before death, but the extremely sudden and unexplainable death induced the exhibitor to present the specimens.

Dr. TYSON hazarded the suggestion that in such a chronic case latent kidney-trouble might have escaped detection, which the mode of death described by Dr. Barton was somewhat suggestive of.

Dr. NEFF had seen this winter a similarly sudden and inexplicable death in a case of uterine cancer, preceded by sudden headache, convulsions, etc., which ended fatally in twelve hours. No post-mortem examination could be obtained, but repeated examinations of the urine revealed nothing abnormal.

Dr. TYSON referred to the theory of cerebral anæmia as a supposed cause of convulsions.

THURSDAY EVENING, MARCH 31, 1882.

VICE-PRESIDENT J. SOLIS COHEN in the chair.

Severe valvular lesion of the heart, complicated by acute intra-pleuro-pericarditis, with abundant serous effusion and peritonitis. Reported by Dr. J. T. ESKRIDGE.

J. B., æt. 22, German, working the last six months in a sugar refinery, was admitted to St. Mary's Hospital January 25 of the present year. His occupation had always been such as exposed him to the vicissitudes of the weather, but he had enjoyed what he considered perfect health until two years ago, when he suffered from pains in his knees and ankle-joints, but at this time his ailment was not sufficient to confine him to the house. Two and a half months before his admission into the hospital, weakness and pain in the region of the heart compelled him to cease work. He was anæmic, and his expression was that of anxiety. His temperature was 100°; pulse, 96, jerking and receding; respirations, 20 per minute. His urine was acid, scanty, and high-colored, but free from albumen. His lungs were apparently healthy, and his appetite fair. The principal and nearly the only thing complained of was pain in the left breast, which often extended to the shoulder and arm of the corresponding side.

The impulse of the heart was strong and forcible. The apex-beat could be felt in the sixth and seventh interspaces on a vertical line drawn midway between the left nipple and anterior border of the left axilla. Two murmurs, with their seats of intensity at or near the aortic orifice, could be heard. One occurred with the systole and the other with the diastole of the heart. The other orifices of the heart were, so far as I could determine, free from disease. Until February 1, nearly a week after my first examination, he seemed to be improving under treatment, and at this time suffered but little from his heart-trouble.

February 2 he complained of slight pain and an oppressed feeling in the region of the heart. I found that the area of dulness extended about one inch below the apex of the heart, whose impulse could now be felt in the fifth interspace. The dulness was pyramidal in shape, and extended to the right of the right border of the sternum. Over the breast-bone, on a line with the third costal cartilage, a to-and-fro friction-fremitus, synchronous with the heart's action, was heard. By firm pressure with the stethoscope its intensity could be increased at will. The friction-sound did not seem to be connected with respiration, and whether or not it was loudest during a full inspiration was not observed. At all events, a pericarditis with effusion was diagnosed. Moreover, at this examination a mitral murmur could be distinctly heard in the left axilla, and faintly posteriorly at the lower angle of the left scapula. The pleuræ and lungs were examined, but no further trouble was detected.

It is but proper to state here that I did not see the patient any more during life, and that to Dr. Strittmatter, who carefully watched and cared for him, I am indebted for the remaining notes of his clinical history.

Feb. 3.—Blistering, alkalies, and moderate doses of anodynes had failed to relieve the pain and distress in the cardiac region. By night the patient's suffering had greatly increased.

Feb. 4.—He was seized with intense lancinating pain in the region of the heart, in each side of the chest, and in the abdomen. The respirations soon became hurried, short, and gasping. His countenance had a pinched expression, his face was pale, and his body bathed in perspiration. Dry cups and blisters gave but little relief. Morphia and atropia were administered hypodermically. Slight improvement then seemed to take place, and he slept about half an hour. He made no improvement during the night, and about ten o'clock on the morning of February 5, while being turned on the left side for a few minutes for the purpose of giving an enema, he gasped for breath, screamed, and fell back pulseless, respiration continuing about one minute after the pulse had ceased, during which time no heart-sounds could be heard.

Autopsy.—The examination was made about twenty-four hours after death, by Dr. Strittmatter and myself, and was restricted to the chest and abdomen.

Chest.—The right pleural cavity was distended to its utmost with a serous effusion. Adhesions binding the right pleura to the pericardium and anterior portion of the chest were found. Only a trace of lymph was present in the effusion. The right lung was pushed upward and backward, and its lower lobe was in the second stage of pneumonia. The left

pleura was adherent to the pericardium and the lower antero-lateral portions of the chest. Only a few ounces of serous effusion were in the pleural cavity of the left side. The left lung was intensely congested, but not inflamed.

The external surface of the pericardium was adherent to everything that lies in contact with it. Its surface was covered with lymph, and its blood-vessels were prominently engorged. The visceral layer of the sac showed no evidences of inflammation, but several ounces of serous effusion were found in the pericardium. The heart was very much enlarged, the increase in size being due principally to enlargement of the left ventricle, which was found to be dilated and hypertrophied. All the valves, save those at the aortic orifice, were in an apparently normal condition. The aortic orifice was constricted by ossification and thickening of all its valvlets, thus giving rise to the systolic murmur. Bony vegetations half an inch long, attached to the apex of one of the valvlets, played to and fro with the current of blood, allowed regurgitation to take place, and added intensity and roughness to both murmurs. No evidence of recent endocarditis was detected. The thoracic aorta was in a good condition. No cause beyond a dilatation of the left ventricle was found for the systolic murmur heard at the mitral orifice.

Abdomen.—Abundant evidences of peritonitis were found in the posterior portion of the abdominal cavity, where considerable serum and lymph were present, and numerous adhesions had taken place. The layers of peritoneum anterior to the bowels were nearly normal in appearance.

The kidneys were intensely red and apparently contracted. The remaining organs were apparently not implicated in the inflammatory process.

To sum up the pathological condition.—The left ventricle of the heart was dilated and hypertrophied; the aortic orifice was roughened and constricted, and its valves, the seat of bony vegetations, were insufficient; the external surface of the pericardium was the seat of old and recent inflammation, and the sac was intimately adherent to the adjacent structures and contained several ounces of fluid; both pleuræ were adherent and contained abnormal quantities of fluid, the right being filled; both lungs were congested, and the lower lobe of the right was inflamed; there was peritonitis with its products; and the kidneys were contracted and congested.

Remarks.—The history of the joint-affection, as well as the condition of the urine in his last illness, points to rheumatism as the origin and nature of his trouble. It is instructive to observe the extensive heart-lesion, which probably began years ago, when he had so mild an attack of rheumatism of the joints that he was not kept in-doors. This case, with the numerous ones which have preceded it, should impress upon us the importance of a thorough examination of the heart in every one suffering from this disease. The cardiac disease, as shown by the valvular ossification and the subsequent ventricular hypertrophy, was not of recent date. The cirrhotic condition of the kidneys followed the diseased state of the heart, rather than acted as a cause of the latter, which is probably more commonly the case. Can any one doubt that the healthy action of the heart would have been less impaired had the cardiac disease been detected during the first appearance of rheumatism and the patient confined strictly to bed? Much of the inflammation around the heart dated back at least two and a half months prior to his admission into the hospital, and was the cause of his distress at that time, which compelled him to stop work. Peritonitis is referred to by most authors on the practice of medicine as being one of the rarest of the internal complications of rheumatism. Dr. Flint, with a ripe experience, has met with only two cases. So diffuse an inflammation of the internal organs as here represented, associated with rheumatism, or more probably of a rheumatic origin, must indeed be exceedingly rare. I cannot find a similar case in the published transactions of this Society.

A few words in regard to the diagnosis at the time I last saw him. At that time there were no evidences of pleurisy, but there were undoubted signs of pericardial effusion, the presence of which the post-mortem examination verified. Further, a double friction-murmur, more or less creaking in character, having an intensity that could be decidedly increased by firm pressure with the stethoscope, was heard over the base of the heart, above the seat of the effusion. No adventitious sounds were heard over any other portion of the chest except the præcordial region, save those of an endocardial origin. In the absence of all symptoms and physical signs of pneumonia and pleurisy, and with the presence of endocardial trouble and signs of pericardial disease, as evinced by a limited to-and-fro friction-fremitus associated with effusion in the pericardium, I felt that I could not doubt the presence of a pericarditis; yet the autopsy showed that there was no pericarditis proper. One resource in the physical diagnosis of pericarditis I omitted to employ, as I felt sure that a diagnosis in this case was easy. The point I refer to is the relation of the friction-sound to respiration. Intra-pleuro-pericardial friction-murmurs should be most distinct during inspiration, and become diminished or absent during expiration. In this patient two friction-sounds were heard with every cardiac beat, regardless of the respiratory act. Whether or not the fremitus was more distinct during inspiration than during expiration I am unable to say, as I considered the

diagnosis of pericarditis so certain that I did not endeavor to differentiate the supposed disease from that which most nearly resembles it. My error in this instance teaches me that all methods (no matter how unimportant they may appear) available in making a diagnosis of obscure diseases should be employed. They will at least corroborate more certain means.

When the man was first admitted, his temperature (100° F.) was about what we should expect to find in a slow form of inflammation. Such an inflammatory process was undoubtedly going on around the heart; but, as the hypertrophied condition of the heart showed the valvular trouble to be an old one, as there were no physical evidences of pleural or pericardial trouble, and as he apparently improved under treatment, and persisted in going about the wards of the hospital, the recumbent posture was not insisted upon. In the light of the autopsy, it seems probable that if he had been kept in bed during treatment acute inflammatory symptoms would have been less likely to result. In a person suffering from valvular lesion of the heart, especially when the cardiac trouble has a rheumatic origin, a temperature persisting above the norm and associated with oppression or uneasy feelings around the heart will in the future be a sufficient indication for me to enjoin absolute rest in bed for my patient, unless there exist sufficient rheumatic joint-trouble to account for the slight elevation of the body-heat.

Finally, I consider myself fortunate that I did not see the man during the last twenty-four hours of his life, when intense dyspnœa was the paramount symptom. Having made a previous diagnosis of pericarditis with effusion, there being no pleurisy, had I seen him gasping for breath the first impulse would have been to relieve his sufferings by aspirating the pericardium without further examination of the chest. With great enlargement of the left ventricle, a completely distended right pleura pushing the heart well over to the left side, and effusion in the left pleura pressing the pericardium, which contained only a few ounces (probably five or six) of fluid, in close contact with the heart, a plunge of the trocar could scarcely have relieved the pericardium without piercing the heart. It is not likely that any amount of surgical interference would have saved life in this case, but, had the true condition been recognized, tapping the right pleural cavity would have been the proper procedure. I have discussed this point at some length, because the fact is here illustrated that there are cases of sudden and impending dyspnœa associated with pericardial effusion, for the relief of which a surgical operation based on a diagnosis made only a few hours before would be liable to be followed by results of the gravest character.

Specimens from a case of typhoid fever; non-typhoid ulcer; congenital stricture of colon; gastritis. Presented by Dr. J. H. MUSSER.

I am indebted to Dr. Judd for the opportunity of exhibiting these specimens. I am not familiar with the clinical details of the case. The patient was a middle-aged man, a good liver, a victim of malaria for some years. Throughout the course of the fever he suffered from gastritis, with pain in the epigastrium, great thirst, and obstinate vomiting. As early as the twelfth day he had a hemorrhage. The bowels were constipated, to relieve which an enema was ordered. After about a pint of the fluid was injected, the patient complained of such very severe pain in the left inguinal region that its administration had to be stopped. Death took place from exhaustion on the thirtieth day. Otherwise the course was typical.

By Dr. Judd's request, I made the post-mortem, eighteen hours after death. The body was not much emaciated; rigor mortis was marked. All the organs occupied their normal relations. The heart was soft and flabby, and filled with ante- and post-mortem clots. The lungs were congested posteriorly. The liver was enlarged, congested, and of a mahogany color. The spleen was enlarged, dark red, and soft. The mucous membrane of the stomach was intensely congested, especially towards the pylorus; there were numerous ecchymoses, and some slight hemorrhages. In the small intestines Peyer's patches were enlarged, but only a few of them ulcerated. About the middle of the ileum there was a round, punched-out ulcer, one-fourth inch in diameter, not connected with any gland, with a small clot of blood in the bottom of it, and which evidently was the source of the early hemorrhage. This ulcer was unlike any belonging to typhoid lesions, and was in existence prior to the disease. In the sigmoid flexure there was a marked congenital stricture of the gut, the lumen of which at this point only admitted my forefinger. The constriction was an inch long. The wall of that portion was four times as thick as the walls of the colon are; it was opaque and lined with mucous membrane. The enemata were evidently obstructed at this point, and hence the pain. I am unable to note the action of the bowels in health.

Dr. J. H. PACKARD discussed the case, and quoted one published in the Transactions of the Pathological Society for 1873.

Dr. ESKRIDGE asked Dr. Packard whether in his experience brain-symptoms were common in cases of typhoid fever occurring in childhood.

Dr. PACKARD replied that he had usually found the brain-symptoms well marked.

Chronic follicular enteritis and colitis. By Dr. J. H. MUSSER.

W. L., æt. 18 months, family history good, hygienic surroundings good. Under care of

Dr. Judd, to whom I am indebted for the clinical notes. July and August of 1881, he had entero-colitis, followed by a marasmic state, from which he was not restored until November. During the winter he throve well and became quite stout, although his bowels were always irregular, constipation alternating with attacks of diarrhœa. About nine days before death he had a fall, striking his head. Six days before death he had a convulsion, repeated in a few hours. The next day an acute entero-colitis set in, with the especial symptoms of tenesmus and frequent, small, bloody, and shining stools, with fever, but without pain or abdominal tenderness. There was not much exhaustion, and death took place in a convulsion; convulsions recurred and stupor began two days before death.

I made the post-mortem for Dr. Judd twenty-four hours after death. The abdominal organs alone were examined. The body was well nourished, and rigor mortis well marked. The omentum had a normal amount of fat about it. The mesenteric and lumbar lymphatic glands were very much enlarged. The peritoneum was healthy. The mucous membrane of the stomach was congested, and near the cardiac end there was a large area of superficial erosion, evidently due to post-mortem digestion. Numerous patches of redness were seen on the peritoneal surface. The mucous membrane of the small intestine was congested at innumerable points, with some ecchymoses. It was softened. Peyer's patches and the solitary glands were enlarged. The solitary glands were very distinct, many projecting from the surface of the mucous membrane; their orifices were enlarged and swollen, and distinguished by a black point in the dull-white colored gland. The patches were red, soft, thickened, and swollen, and appeared as if ulcerated. In the large intestine, the mucous and sub-mucous coats were thickened and indurated; portions were congested, while other parts were very œdematous, and of an ashen-gray hue; the glands were much enlarged, and readily showed underminings of their edges, due to an ulcerative process, by the insertion of a small probe into their orifice.

The short duration of the illness, and the absence of any symptom or symptoms of entero-colitis sufficiently severe to cause death, lead me to infer that death took place from some cerebral trouble. There were no distinct symptoms of meninigitis, acute or tubercular; but the fall, the convulsions, the recurrence of convulsion, etc., after the slight exhaustion from the bowel-complaint, seem to confirm such an idea, and in all probability death was caused by a clot or effusion. It is unfortunate that the brain could not be examined.

There is no doubt in my mind that some of the lesions existed since the acute disease the previous summer, notably the changes in the glands. I think it can be set down as a case of chronic disease becoming acute, and that there were present lesions common to both.

[Dr. NEFF presented a specimen of multiple ecchymoses of the lungs and heart, the notes of which will be published in a future number of the *Times*.]

PHILADELPHIA COUNTY MEDICAL SOCIETY.

A CONVERSATIONAL meeting of the Society was held at the Hall of the College of Physicians, Philadelphia, February 8, 1882, Dr. Horace Y. Evans, President of the Society, in the chair. Dr. Charles H. Burnett read a paper on "Aural Vertigo" (see page 585).

DISCUSSION ON DR. BURNETT'S PAPER.

Dr. Mills said that the paper reminded him of several cases which established the correctness of Dr. Burnett's views. In one case a small tumor of the median lobe of the cerebellum had caused slight pressure on the floor of the fourth ventricle. In this case pronounced vertigo existed, with tendency to go to the left. In a second case he had diagnosticated tumor of the middle cerebellar peduncle. The patient had a tendency to go to one side, and had one-sided anæsthesia. On post-mortem no tumor was found, and no softening, but apparent atrophy of one side of the cerebellum. A third case was now at the Pennsylvania Training-School for Feeble-Minded Children. The patient, a boy, aged eight or ten years, has a peculiar vertigo, or rather tendency to whirl from left to right. The rotation could easily be produced by taking the boy by the hand or by the ear, or in any other way giving him a start. The rotation might continue for ten or fifteen minutes or longer, until one would think he would be quite worn out. He has a constant tendency to this rotation when on his feet, and it is probably due to disease of the bones of the internal ear.

Dr. Burnett referred to a case he had seen at the Pennsylvania Hospital (alluded to in the paper). It was the most remarkable he had ever witnessed. The patient, a woman, had distressing vertigo and deafness, but no particular tendency to turn to either side; she tended rather to fall forward. After death a tumor was found *on each auditory nerve*, and the labyrinth on both sides was invaded by the disease. Dr. Mills's case reminded him of one reported by Ehrhardt, of Berlin. In this patient, a boy, vertigo, reeling, falling, nausea, and vomiting could be produced by causing him to smell ether, which would so irritate the mucous lining of the naso-pharynx that the mouth of the Eustachian tube would be suddenly closed and a vacuum rapidly formed in the middle ear. This would produce retraction of the drum-head, with its at-

tendant conditions of pressure upon the labyrinth-water, irritation of the cerebellum, and vertigo, as set forth in the paper.

That these aural-cerebral manifestations were due to the physical effects of closure of the Eustachian tube was shown by their instantaneous disappearance upon opening the tube by means of inflation, either by the air-bag or the Eustachian catheter. In the case of the boy who presented peculiar rotatory movements, as mentioned by Dr. Mills, Dr. Burnett suggested that it would be well to examine the naso-pharynx.

NEW YORK ACADEMY OF MEDICINE.

STATED MEETING, MAY 18, 1882.

DR. FORDYCE BARKER, President, in the chair.

RESOLUTIONS, framed by Dr. Van Buren, in honor of the late James Rushmore Wood, M.D., LL.D., were read and unanimously adopted. Appropriate remarks were made by Drs. SAYRE, WILLARD PARKER, DETMOLD, and the President.

REMARKS ON LITHOTRITY, WITH EVACUATION, ILLUSTRATED BY SPECIMENS, BY HENRY J. BIGELOW, M.D., OF BOSTON.

The speaker began his remarks by saying that the subject was an old one. It was purely surgical, and, one might say at the present time, almost purely mechanical; but since the improved mechanics of the subject had made lithotrity what it was, putting it on a substantial and useful basis in surgery, a somewhat detailed account of the successive steps towards bringing it to its present degree of perfection might be of interest to the members of the Academy, some of whom had given the operation material aid in gaining recognition in surgery. The whole of the subject had to do with the breaking of the stone in the bladder and getting it out through the urethra, and in doing the latter we had to deal with air, water, and solid material. Various kinds of instruments had been found effectual in breaking the stone, some more so than others, though the choice of these depended not a little upon the personal preferences of the operator. When Civiale first performed lithotrity he occupied from twenty to thirty minutes, and the bladder was found very tolerant of these manipulations; but by improved instruments and increased skill he reduced the time to a few minutes, and at present the usual length of a sitting was not more than three or four minutes. When at first these long sittings were followed by any bad results, it was due rather to non-removal of the crushed stone from the bladder than to the length of the sitting. A method of evacuating the bladder was early invented. Clover's evacuator would have been more effectual had it acted with greater suction-force and had attached to it a large catheter such as was used at the present time. It had not a receptacle for the evacuated detritus, a considerable part of which was returned to the bladder with the water. Dr. Bigelow then described the kind of catheter which he preferred, which was straight, with an opening near or even occupying a part of the distal end, its long diameter not greater than the diameter of the calibre of the catheter, lest a portion of stone too large to pass through the catheter should engage within it and possibly lacerate the urethra during withdrawal of the instrument. He then traced the successive steps in seeking to perfect an instrument by which the detritus, as it was evacuated from the bladder, should be prevented from returning with each successive injection of the fluid. First a simple strainer was incorporated with the evacuator, then a receptacle joined to the rubber bulb, into which the detritus might fall, this also going through various modifications, and even yet a part of the detritus would be returned with the water. Weiss's instrument was unsatisfactory in this regard. The instrument which he had gradually settled down upon consisted of the large straight catheter, of a bulb, of an attached receptacle,—a tube projecting from the attached catheter into the bulb a sufficient distance, and perforated on the sides to act as a strainer, preventing the return of detritus, except the few particles which might find their way back through the terminal opening,—of two stop-cocks, and of a piece of tubing or hose. It might be supported by a stand if desired. By this instrument the air could be evacuated in a moment; through the hose the amount of water within the bladder could be increased or decreased at pleasure and immediately,—an important point in case of vomiting under ether, etc.; with this arrangement of the sieve and receptacle practically scarcely any of the detritus was returned. As to the lithotrite used in crushing the stone, that one was most effectual and allowed of the least rolling or slipping of the stone whose curve approached nearest a right angle, and it should be as nearly so constructed as was consistent with its introduction through the urethra. The handle should be of such a form as was easiest of motion by the hand of the operator. He showed an instrument which he considered most convenient for beginners and also for the experienced surgeon.

DISCUSSION.

Dr. E. L. KEYES said that the fact that the operation of lithotrity with evacuation had been but a few years ago condemned by an eminent body of surgeons, now to be almost everywhere recognized and most successfully practised, was the highest compliment which could be paid to the labors of Dr. Bigelow in this direction during the past few years. He referred to the fact of great tolerance on the

part of the bladder, and that almost any kind of instrument might be used with success in crushing the stone; but since one time having employed an instrument said to be least liable to clogging, but which nevertheless did clog and caused laceration of the urethra on withdrawing the instrument, he was now always very careful to guard against the possibility of a recurrence of the accident. He thought the straight tube delivered the detritus better than the curved, and it might be passed as easily in the young subject; but in certain cases in the aged he employed the curved one, because more easily passed through the less elastic parts. The great advantage of this instrument for the diagnosis of the presence of small stone was sufficient in itself to make it of great service to the surgeon and to reflect credit upon its inventor.

Dr. R. F. WEIR thought this aspirator the best which had been invented, and one for which we were much indebted to the speaker of the evening. The bladder in old men, usually, was much more tolerant than in the middle-aged or young subject. He believed it to be much more tolerant to introductions of the lithotrite than to violent aspiration. There were certain cases in which it was better to make a number of short sittings than one prolonged one, as in certain kidney-troubles, etc. A number of seizures of the stone—twenty, or even more—might be made in half a minute. It was shown by statistics, however, that out of a large number of cases the operation was completed at a single sitting, the stone, too, being of considerable size, thus showing the great tolerance of the bladder. He thought the fragments remaining in the bladder did less harm than was believed, for within so short a time as ten or twelve hours they became coated over with tenacious mucus, which rendered their expulsion easier—less painful—than if they were expelled at once from the unprotected urethra. Therefore he was firmly convinced that aspiration should be restricted to those cases in which the bladder was not capable of expelling the detritus; that whenever it was able to expel the detritus, if this was not too abundant, it should be allowed to do so. He had never had an accident follow it. It mattered little, in his opinion, as to what kind of instrument was used in crushing the stone; it might be reintroduced a number of times, if necessary, without injury, the bladder being tolerant. But he believed lithotripsy could not be made to take the place of the cutting operation in all cases; in some instances one method was indicated, in others another. Only recently he performed bilateral lithotomy, feeling confident that no other method was as appropriate in that particular case.

Dr. F. N. OTIS would express his personal appreciation of the value of the instrument presented before us. In the great majority of cases of vesical calculus which came before the surgeon this was the operation indicated. A great deal had been said about the tolerance of the bladder. He considered that a well-established fact, and it needed little comment; but the urethra seemed to be almost entirely forgotten. In his opinion the great danger in this operation related to injury of the urethra. Injury might be done to this at constricted points, and before the operation was begun it should be determined what was the proper size of this canal, and then divide any constricted portions to a degree corresponding with the size of the rest of the canal. It would be an advantage if the surgeon, before performing this operation, could always have that frequent experience which makes perfect in all things.

The subject was further discussed by Drs. SANDS, SAYRE, PARKER, and (in closing) by Dr. BIGELOW, who showed the detritus of the largest stone he had ever removed in this manner, weighing 1380 grains.

A vote of thanks was tendered Dr. BIGELOW for his interesting remarks, after which the Academy adjourned.

GLEANINGS FROM EXCHANGES.

NEW METHOD OF ESTIMATING URIC ACID IN THE URINE.—In the *British Medical Journal* for April 15 Dr. E. A. Cook, after referring to the unsatisfactory character of the hydrochloric acid test, and the acknowledged want of accuracy of Pavy's new method with the copper solution, recommends the following original method:

"Take 300 or 400 cc. of the urine and add a few drops of strong solution of caustic soda, enough to render it decidedly alkaline; allow the precipitate of phosphates to subside, and pour off 100 cc. of the clear solution; add to this clear solution about 4 cc. of a solution of zinc sulphate, 1 in 3 strength. The solution of zinc sulphate renders blue litmus red, and it must be added to the urine until a drop of the mixture on blue litmus gives a slightly red circle. If the solution be too acid, a drop or two of caustic solution will render it neutral. The precipitate is thrown on a filter, and washed with a saturated solution of zinc urate. (This solution is made by adding a little zinc sulphate to distilled water, and then adding urate of soda until a permanent precipitate remains; this is allowed to subside, and the solution is used for washing until all the urea and ammonia are removed.) The drained precipitate is folded in the filter, and placed, with 50 cc. of hypobromite of sodium of full strength, in a urea estimation apparatus, and agitated carefully. The gas evolved will be an indication of the amount of uric acid present in 100 cc. of the urine. The evolution of gas does not commence immediately, and there is sufficient time to insert the stopper

and note the number at which the water stands in the gas-tube. If a reaction begins immediately, the precipitate has not been sufficiently washed. The reaction is complete at the end of half an hour, without the application of heat. On many occasions, when the urine precipitate was mixed with the hypobromite, a blue color appeared, and again disappeared, and at first this was supposed to be due to a substance other than uric acid; but, in repeated experiments with urate of zinc, made with pure white crystals of uric acid, the same blue color was observed. This blue is not indigo. A quantity of pure urate of soda was precipitated with zinc sulphate, and washed; the precipitate mixed with distilled water, and hypobromite of sodium added drop by drop; the color appeared, and deepened to a dark blue. Tartaric acid was then added, when the color disappeared, and would not return when the solution was rendered alkaline; nor on further addition of hypobromite. The zinc precipitate can be dissolved in caustic soda solution, diluted, and used with boiling Fehling's solution in the manner proposed by Pavy.

"*Effect of the Presence of Ammoniacal Salts on the Precipitate.*—Ten cc. of the standard solution of urate of soda were added to 90 cc. of water, and 1 grain of ammonium chloride added. The mixture was then precipitated as usual with zinc sulphate, filtered, washed, and placed in the urea apparatus; the gas yielded equalled 8 cc., indicating that the presence of ammoniacal salts is not detrimental, as the whole of the ammonia can be removed by washing.

"Hippurate of zinc is soluble in water, and the other nitrogenous constituents of urine, if precipitated with the uric acid, are in too small amounts to sensibly affect the result.

"With a filter pump, the precipitation, and washing, and evolution of gas, may all be completed in one and a half hours; and, of course, several experiments may proceed at one time.

"Although this process will not give a mathematically accurate estimation of uric acid, it is one which, with ordinary care, will give very approximate results; and although it may be urged that the solubility of zinc urate may be greater in urine than in water, yet the results of a number of experiments will always be comparable with each other. It may be possible that, under special circumstances, other substances may be precipitated, and may interfere with the estimation, yet in normal urine the sources of error are small, and a series of estimations have given very interesting results: moreover, there are many drugs which will not themselves affect the composition of the precipitate, and therefore are no bar to accuracy."

RECOVERY FROM PSEUDO-HYPERTROPHIC PARALYSIS (?).—Dr. Donkin reports the case of a child six years old, who exhibited the ordinary characteristic features of pseudo-hypertrophic paralysis,—weakness, disinclination to active exertion, inability to walk or run fast, falling about, while at the same time the mother had noticed that his calves and buttocks seemed larger than before. Dr. Donkin says,—

"The boy stood with his legs wide apart, straddled and swung from side to side as he slowly walked, fell down on attempting to walk quickly, and was unable to raise himself from the sitting posture without pressing on one of his knees and previously turning round and sitting on all-fours. There was protrusion of the abdomen, and a noteworthy degree of lordosis. On stripping him, it was obvious that his calves and buttocks were remarkably large for a boy of his size. The skin, especially over the lower part of the body, was markedly mottled; and, after repeated trials, I failed to elicit the knee-jerk, except perhaps very slightly in the left leg. Knowing, however, how erroneous it often is to attach any value to the absence of this latter phenomenon in children, and the general want of knowledge about the importance of this symptom at all, I mention it only because, on the recovery of the boy, which is the excuse for this record, the knee-jerk was elicited in both legs with as much ease as could be expected in the case of a rather excitable child. There was not any obvious enlargement of the muscles of the upper extremity. But I was able on that day to make but an imperfect examination, and unfortunately postponed both the measurement of the girth of his calves and all further methods of inquiry. Owing to an unavoidable absence, I did not see the case again till January 7, more than six weeks after the first visit. Then, to my surprise, beyond some waddling in walking, I noticed no symptoms of loss of power. The boy could run with ease, and raise himself from the ground in the ordinary manner, even without placing his hands on the floor. The calves still appeared to me to be somewhat large; but the mother, again spontaneously, observed that both the calves and buttocks had 'got quite small again.' There was no mottling of skin. On the 14th I saw him again. He still waddled slightly in walking; and I again failed, as I had also on the 7th, to produce any knee-jerk after careful trial. The mother believed the child to be now quite well. On the 21st I could detect nothing abnormal about the child or his movements, with the exception of the knee-jerk symptom. I saw him again on February 10, when I did not examine him, and, for the last time, on March 11, when I found the appearance of the body normal; the gait in no way altered; running performed with perfect ease; and the knee-jerk produced with tolerable readiness."

The treatment ordered had been complete rest, and a bitter tonic (mixture of iron and nux

vomica). Even if this should not be accepted as a typical case of the disease in question, it will serve to point to the fact that cases may occur in which temporary affections of the nerve-cells may exist, giving rise to transient symptoms simulating pseudo-hypertrophic paralysis. To whatever the symptoms may be due, it would seem that *rest* must be reasonably credited with their disappearance.—*British Medical Journal*, April 15.

THE BACILLUS LEPRÆ (?).—Dr. H. D. Schmidt, of New Orleans, at the last meeting of the State Microscopical Society of Illinois, read a paper entitled "Is the Bacillus Lepræ a Reality or a Fiction?" in which he reviews some of the more recent literature of the subject, and reports the result of the examination of the tissues of three typical cases of lepra. Pursuing the most approved plan (of staining with methyl-violet, etc.), he was unable to detect anything like a characteristic microbe, but encountered a few micrococcus-zoöglea, and some fungus-filaments, which had evidently become accidentally introduced into the section during its preparation, as they were only on the surface: it was especially noted that the protoplasm of the cells of the skin was not invaded. Not a trace of any bacillus form could be discovered. In the cases reported by Neissler, Carter, Bermann, and others, the author thinks it probable that sufficient care has not been taken to prevent the contamination of the specimen with bacilli, or perhaps the omnipresent micrococcus-zoöglea and spores have been mistaken for characteristic forms, or, as acknowledged by Hansen (in his latest communication, in which he retracts his former views), the peculiar changes going on in the diseased tissues (appearing coincidently with the softening of the tubercles) are really due to the presence of "large groups of more or less degenerated neoplastic cells, originally derived from the nuclei of the fat-cells, and replacing the latter." Small crystals of margaric acid observed in these compound cellular bodies, though easily recognized, might nevertheless, in sections not stained with hæmatoxylin or methyl-violet, be taken for bacilli. Such observations have led to the conclusion that there is a specific bacillus lepræ, the truth of which Dr. Schmidt believes has not yet been demonstrated.—*Chicago Medical Journal and Examiner*, April, 1882.

RECTO-VULVAR FISTULÆ.—In a communication to the Société de Chirurgie recently, Verneuil, in compliance with a request, gave his personal experience in the treatment of this affection, and offered the following propositions: 1. Recto-vulvar fistulæ, small, easy to get at, and very easily operated upon, are very difficult to cure. 2. American operations, so well known, so efficacious in vesico-vaginal fistulæ, are mostly unsuccessful, even when skilfully performed. 3. Their various failures have forced surgeons to modify continually their method of operating; but these changes have not had much result, because the causes of non-success have not been sufficiently elucidated. 4. It is to the discovery of these causes that attention must be directed in order to establish securely an operation so trifling and so simple that its non-success is a disgrace to surgery.

M. Verneuil concludes that the cause of this non-success is the effort to obtain immediate union, whereas the only cure to be hoped for is by granulation,—a method, indeed, by which cures are sometimes effected spontaneously in this condition.—*Bulletin Général de Thérapeutique*, April 15.

MISCELLANY.

THE meeting of the American Surgical Association, held during the past week (May 31 and June 1 and 2), was the most successful that the Association has ever held. Prof. Gross presided, and valuable papers were presented and discussed. Entertainments were provided by Prof. S. D. Gross, S. W. Gross, J. H. Brinton, D. Hayes Agnew, J. Ewing Mears, and R. J. Levis. A report of the meeting will appear in our next issue.

A SPECIAL meeting of the Alumni Association of the Jefferson Medical College was held on Tuesday, May 30, at the College of Physicians, to consider the endowment of a chair of Pathological Anatomy at the Jefferson College in honor of Prof. S. D. Gross. Pledges amounting to several thousand dollars have been already received for this object.

DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION.—Drs. Frické, Packard, Dunglison, and Woodbury, of the Philadelphia delegation to the American Medical Association, have gone to St. Paul.

THE MASSACHUSETTS STATE PHARMACEUTICAL ASSOCIATION was organized on May 17 by a convention called for the purpose, which assembled at Worcester. About two hundred pharmacists were in attendance.

THE NEW JERSEY STATE PHARMACEUTICAL ASSOCIATION on May 18 concluded a very successful meeting at Atlantic City.

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U.S. ARMY FROM MAY 14 TO MAY 27, 1882.

LIEUTENANT-COLONEL GLOVER PERIN (SURGEON), MAJOR WILLIAM C. SPENCER (SURGEON), and CAPTAIN PHILIP F. HARVEY (ASSISTANT-SURGEON) directed to represent the Medical Department of the Army at the annual meeting of the American Medical Association, to be held in St. Paul, Minn., on June 6, 1882. S. O. 114, A. G. O., May 17, 1882.

MAJORS C. T. ALEXANDER and J. H. JANEWAY (SURGEONS) and CAPTAIN R. H. WHITE (ASSISTANT-SURGEON) detailed as members of a board of medical officers to examine into physical qualifications of members of the graduating class and of candidates for admission to Military Academy. S. O. 110, A. G. O., May 12, 1882.

MOSELEY, E. B., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for four months. S. O. 120, A. G. O., May 24, 1882.